

Via Electronic Mail

Ms. Charlene Falco
Illinois Environmental Protection Agency
Bureau of Land, #24
Federal Site Remediation Section, Federal Facilities Unit
1021 North Grand Avenue East
Springfield, IL 62702

**Re: Monthly Progress Report – April 2016
Interim Consent Order Activities
DePue Site, DePue, Illinois

People of the State of Illinois vs Horsehead Ind., et al.
Case Number 95 CH 18
Site ID 0110300003 – Bureau**

Dear Ms. Falco:

May 16, 2016

This progress report is being submitted by Ramboll Environ US Corporation (Ramboll Environ), on behalf of the DePue Group. The attached progress report addresses the Interim Consent Order (ICO) activities conducted from April 1 to April 30, 2016 at the DePue Site. The report also indicates planned activities for the next reporting period.

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333 West Wacker Drive
Suite 2700
Chicago, IL 60606
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This report complies with the requirements of the ICO, Section XVI, paragraph C, and Attachment 1, paragraph 12.

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If you have any questions, please call.

Sincerely,

Ramboll Environ US Corporation



Scott Hayter
Principal

Attachment

**MONTHLY PROGRESS REPORT
FOR
APRIL 2016**

**INTERIM CONSENT ORDER ACTIVITIES
DEPUE SITE
DEPUE, ILLINOIS**

Prepared For:

Illinois Environmental Protection Agency
1021 North Grand Avenue, East
Post Office Box 19276
Springfield, Illinois 62794-9276

DISTRIBUTION:

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1 copy – Eric Bryant, Village of DePue (electronic copy only)
1 copy – Tony Wlodarski, AMEC (electronic copy only)

I OPERABLE UNIT 1: SOUTH DITCH SEDIMENT

- Completed

II. OPERABLE UNIT 2: PHOSPHOGYPSUM STACK

Summary of Work Performed during the Reporting Period:

- Routine maintenance and monitoring activities continued at the phosphogypsum stack. These activities included pumping, observing and recording flow and water levels, maintaining storm water diversion systems (catch basins, dams, and discharge piping), measuring flow and collecting samples at the Outfall 002 (OU2) when applicable, inspecting, monitoring and maintaining groundwater collection and pumping systems, inspecting and maintaining cover integrity, and supporting and maintaining the Health and Safety program.
- The center pivot irrigation system resumed operation for the season on April 13, 2016.
- The center pivot irrigation system discharged 2.5-million gallons during the month of April.
- As of May 2, 2016, 166.8-million gallons of water had been discharged through the treatment wetland. Flow rates and discharge are logged daily, Monday through Friday and reported monthly to the Illinois Environmental Protection Agency (IEPA).
- The wetland system was shut down for the winter season on November 13, 2015
- Three samples were collected from Outfall 002 during April 2016.
- The DePue Group submitted responses on April 1, 2016 to the received response from the IEPA on February 19, 2016 to the DePue Group's November 6, 2015 response to comments on the Final Closure Plan.
- The DePue Group released the final specifications, plans, and bid package for the OU2 Closure of the Phosphogypsum Stack System.
- The DePue Group prepared responses to comments received from the IEPA on March 25, 2016 for the OU2 Closure Final Design Report.

Summary of Work Planned for the Next Reporting Period:

- Continue routine maintenance and monitoring activities within the Phosphogypsum Stack System.
- Review technical submittals to the bid package of the final specifications and bid documents for implementation of the Closure of the Phosphogypsum Stack System.
- Submit a response to the IEPA's March 25, 2016 comments on the OU2 Closure Final Design Report.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- None

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

III. OPERABLE UNIT 3: PLANT SITE

Summary of Work Performed during the Reporting Period:

- Risk Assessment
 - The DePue Group awaits IEPA comments on the Ecological Risk Assessment/Baseline Ecological Risk Assessment (SLERA/BERA) Work Plan Response to Comments submitted on November 21, 2015.
 - The DePue Group continued with setup of the OU3 groundwater model. The DePue Group received IEPA's approval to proceed with the OU3 Groundwater Modeling and will provide comments following review of initial model results.
- Interim Water Treatment Plant (IWTP) Operations
 - The IWTP treated 1,118,951 gallons of water during April 2016. The influent and effluent data are included in Attachment 2:
 - Approximately 6,000 pounds of zinc were removed.
 - Approximately 260 pounds of manganese were removed.
 - Approximately 400 pounds of copper were removed.
 - The following activities were completed at the IWTP:
 - Routine operation and maintenance.
- Site Operations
 - The most recent OU3 site fence inspections were completed on April 26, 2016. There were no issues noted; all fencing was found secure and "No Trespassing" signs were intact. No repairs were necessary.

Summary of Work Planned for the Next Reporting Period:

- The DePue Group will continue to prepare the OU3 groundwater model.
- Interim Water Treatment Plant
 - The DePue Group will continue routine operation and maintenance at the IWTP.
 - The DePue Group will evaluate options for maintenance recommendations identified in the IWTP tank inspection memorandum.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- None

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

IV. OPERABLE UNIT 4: OFF-SITE SOIL

Summary of Work Performed during the Reporting Period:

- Remedial Design
 - The DePue Group continued to prepare the OU4 Remedial Design Report in accordance with the Remedial Design (RD) outline discussed with IEPA.

Summary of Work Planned for the Next Reporting Period:

- The DePue Group will continue to prepare the OU4 RD Report.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- None

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

V. OPERABLE UNIT 5: DEPUE LAKE AND FLOODPLAIN

Summary of Work Performed during the Reporting Period:

- DePue Lake Risk Assessments
 - The DePue Group received IEPA comments on the Tier 1 Surface Water Quality Monitoring Report and additional comments on the Supplemental Sediment Investigation Work Plan on March 22, 2016.

Summary of Work Planned for the Next Reporting Period:

- DePue Lake Risk Assessments
 - The DePue Group will evaluate IEPA's responses to the Sediment Investigation Work Plan and Surface Water Quality Report.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- Additional requirements necessary to address OU1 (South Ditch Sediments), if any, will be completed as part of the scope of work for OU5 (DePue Lake and Floodplain).
- The Supplemental Sediment Investigation has been postponed pending resolution to IEPA's comments on the work plan.

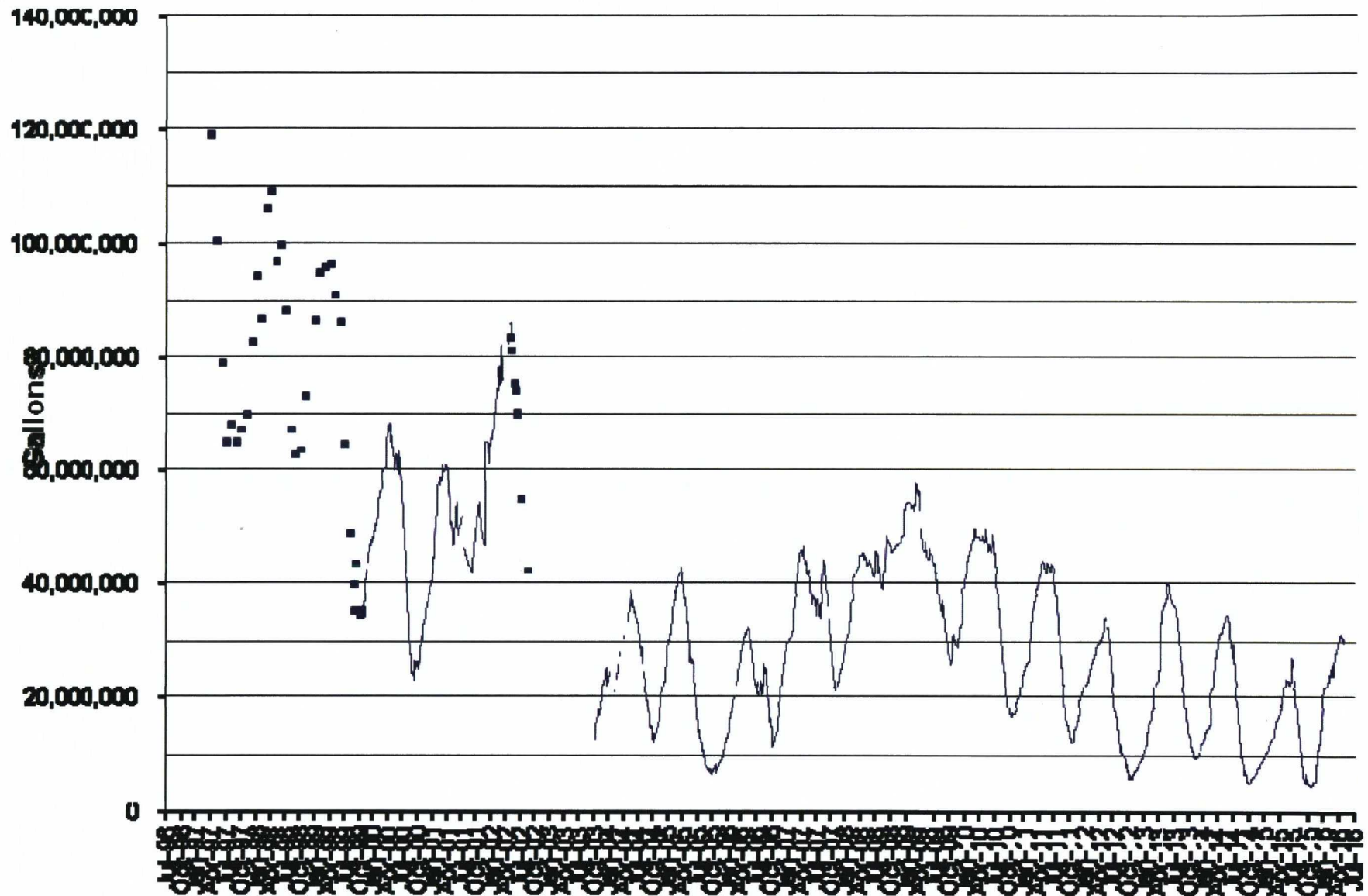
Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

ATTACHMENT 1

Gypstack

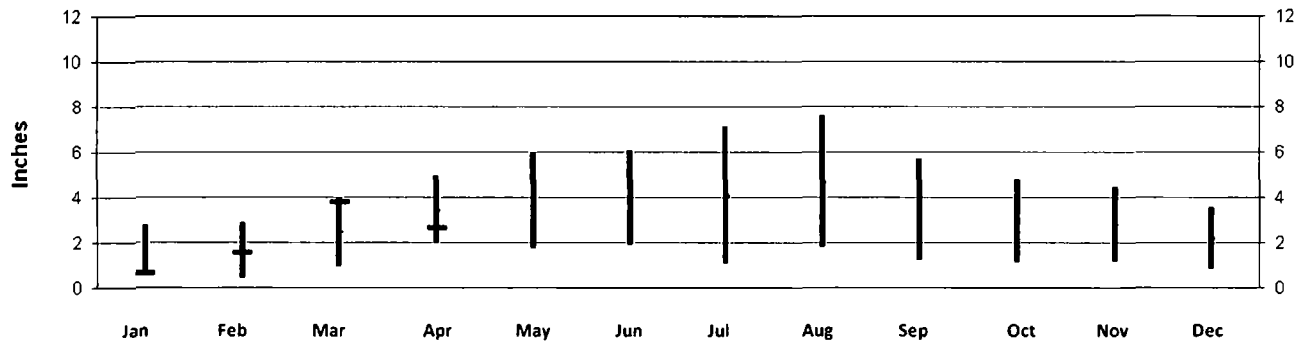
Surface-Water Volumes within the Phosphogypsum Stack System



1978 Through 2016 DePue Site Precipitation

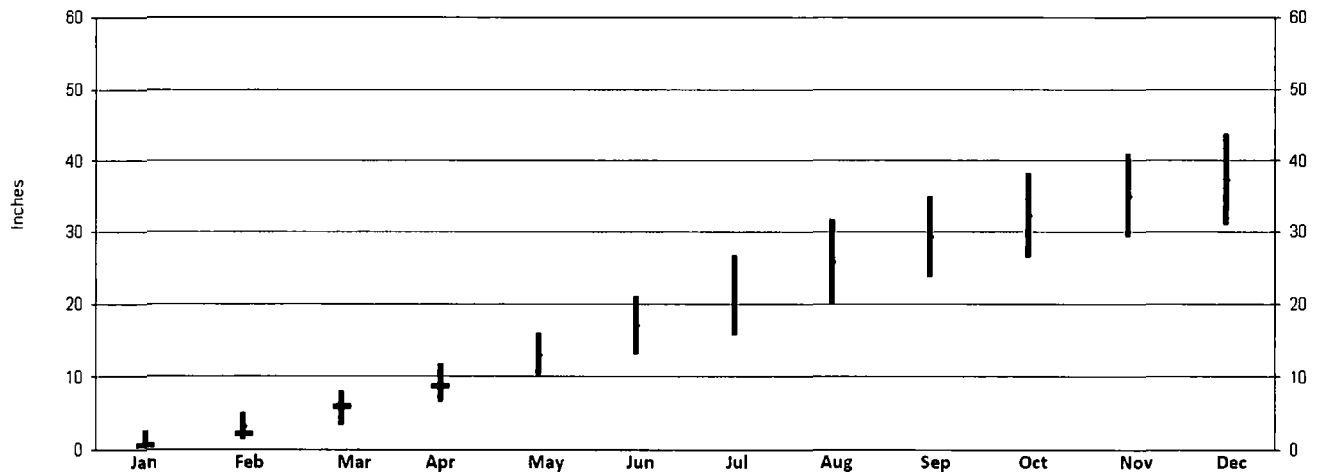
2016 Monthly Averages
(± 1 Standard Deviation)

1. Monthly Average (1978 - 2016)
2016 1. Monthly Total



2016 Average Monthly Cumulative Totals
(± 1 Standard Deviation)

Average Monthly Cumulative Total (1978-2016)
- 2016 Monthly Cumulative Total



Analytical Results for Samples Collected at the 002 Outfall (mg/L)

Sample Collection Date	pH (S.U.)	Total Dissolved Solids (mg/L)	Total Phosphorus (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	Ammonia-Nitrogen (mg/L)	Unionized Ammonia (mg/L)
1/06/16	7.89	491	0.396	0.512	90.8	0.111	<0.00100
2/03/16	7.63	312	0.911	0.368	73.9	0.190	<0.00100
2/17/16	7.11	498	0.362	0.536	96.7	0.438	<0.00100
3/01/16	7.20	537	0.605	0.786	137	0.178	<0.00100
3/17/16	7.60	477	0.365	0.502	115	<0.100	<0.00100
4/05/16	6.99	475	0.448	0.547	105	<0.0643	<0.00100
4/20/16	7.43	473	0.516	0.590	117	0.735	0.00588
4/28/16	7.34	513	0.613	0.569	126	<0.100	<0.00100
Former Permit IL 0032182 Limits	6.5 – 9	1,000	Report	1.4	500	15	0.04

ATTACHMENT 2

Summary of Sampling Results

DePue Interim Water Treatment Plant

Interim Consent Order Report
 April, 2016
 Summary Of Analytical Results
 DePue Interim Water Treatment Plant

Influent Data (mg/L)

Date	TSS	Cadmium	Copper	Iron	Manganese	Nickel	Lead	Zinc	pH- std units	Lift Station Flow (gpm)
01/05/16	68	1 8	36	2 4	29	<1 0	<1 0	640	5 88	32
02/02/16	14	1 3	30	1 1	27	<1 0	<1 0	610	5 90	22
03/02/16	16	1 4	35	0 8	28	0 6	0 4	630	5 90	30
04/05/16	110	1 3	35	1 6	23	0 5	0 6	530	5 86	36
YTD Average	52	1 5	34	1 5	27	0 8	0 8	603	5 89	30

Notes

1 Values preceded by "<" were not detected greater than the laboratory method detection limit shown

Interim Consent Order Report
April, 2016
Summary Of Analytical Results
DePue Interim Water Treatment Plant

Effluent Data (mg/L)

Date	TSS	Cadmium	Copper	Iron	Manganese	Nickel	Lead	Zinc	pH - std units
01/05/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 00
01/12/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 12	7 02
01/19/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 00
01/26/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 24	7 10
02/02/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 12	7 00
02/09/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 46
02/16/16	6 4	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 13	7 00
02/23/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 00
03/02/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 31	7 66
03/09/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 00
03/15/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 11	7 12
03/22/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 13	7 06
03/29/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 00
04/05/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 14	7 06
04/12/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 13	7 00
04/19/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 22	7 02
04/26/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 12	7 00

YTD Avg	4 1	0 02	0 10	0 10	0 10	0 10	0 10	0 15	7 09
Apr Avg	4 0	0 02	0 1	0 1	0 1	0 1	0 1	0 15	7 02
Apr Max	4 0	0 02	0 1	0 1	0 1	0 1	0 1	0 22	7 06

DISCHARGE LIMITS (mg/l)

	TSS	Cadmium	Copper	Iron	Maganese	Nickel	Lead	Zinc	pH-std units
Daily Max	30	0 3	1	4	2	2	0 4	2	6-9
Monthly Avg	15	0 15	0 5	2	1	1	0 2	1	6-9

Notes

1 Values preceded by "<" were not detected greater than the laboratory method detection limit shown

Via Electronic Mail

Ms. Charlene Falco
Illinois Environmental Protection Agency
Bureau of Land, #24
Federal Site Remediation Section, Federal Facilities Unit
1021 North Grand Avenue East
Springfield, IL 62702

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Interim Consent Order Activities
DePue Site, DePue, Illinois

People of the State of Illinois vs Horsehead Ind., et al.
Case Number 95 CH 18
Site ID 0110300003 – Bureau**

Dear Ms. Falco:

August 15, 2016

This progress report is being submitted by Ramboll Environ US Corporation (Ramboll Environ), on behalf of the DePue Group. The attached progress report addresses the Interim Consent Order (ICO) activities conducted from July 1 to July 31, 2016 at the DePue Site. The report also indicates planned activities for the next reporting period.

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333 West Wacker Drive
Suite 2700
Chicago, IL 60606
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This report complies with the requirements of the ICO, Section XVI, paragraph C, and Attachment 1, paragraph 12.

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If you have any questions, please call.

Sincerely,

Ramboll Environ US Corporation


Scott Hayter
Principal

Attachment

**MONTHLY PROGRESS REPORT
FOR
JULY 2016**

**INTERIM CONSENT ORDER ACTIVITIES
DEPUE SITE
DEPUE, ILLINOIS**

Prepared For:

Illinois Environmental Protection Agency
1021 North Grand Avenue, East
Post Office Box 19276
Springfield, Illinois 62794-9276

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I OPERABLE UNIT 1: SOUTH DITCH SEDIMENT

- Completed

II. OPERABLE UNIT 2: PHOSPHOGYPSUM STACK

Summary of Work Performed during the Reporting Period:

- Routine maintenance and monitoring activities continued at the phosphogypsum stack. These activities included pumping, observing and recording flow and water levels, maintaining storm water diversion systems (catch basins, dams, and discharge piping), measuring flow and collecting samples at the 002 Outfall when applicable, inspecting, monitoring and maintaining ground-water collection and pumping systems, inspecting and maintaining cover integrity and supporting and maintaining the Health and Safety program.
- The center pivot irrigation system discharged 8.2 million gallons during the month of July. During July the treatment wetland operation was suspended to allow for the planting of additional cattails. The wetland operation remains shutdown to allow for initial growth of the new cattails.
- As of August 1, 2016, 169.3 million gallons of water had been discharged through the treatment wetland. Flow rates and discharge are logged daily, Monday through Friday and reported monthly to the Illinois Environmental Protection Agency (IEPA).
- Three samples were collected from Outfall 002 during July 2016.
- Submitted a revised QAPP for borrow source sampling on July 20, 2016.
- Additional subsurface design investigation borings and piezometers were completed in the swale area and toe-ditch of the Phosphogypsum Stack Area between July 26 and July 29, 2016.

Summary of Work Planned for the Next Reporting Period:

- Continue routine maintenance and monitoring activities within the phosphogypsum stack system.
- Continue the re-evaluation of regulatory requirements, closure design, contractor technical submittals, specifications and bid documents for implementation of the Closure of the Phosphogypsum Stack System.
- Submit a response to the final comment on the Final Closure Plan from the IEPA received on May 26, 2016.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- None.

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

III. OPERABLE UNIT 3: PLANT SITE

Summary of Work Performed during the Reporting Period:

- Risk Assessment
 - The DePue Group prepared a preliminary response to IEPA's June 20, 2016 comments on the Ecological Risk Assessment/Baseline Ecological Risk Assessment (SLERA/BERA) Work Plan.
 - The DePue Group presented the preliminary results of the OU3 groundwater model to IEPA.
- Interim Water Treatment Plant (IWTP) Operations
 - The IWTP treated 691,363 gallons of water during July 2016. The influent and effluent data are included in Attachment 2:
 - Approximately 3,700 pounds of zinc were removed.
 - Approximately 170 pounds of manganese were removed.
 - Approximately 310 pounds of copper were removed.
 - The following activities were completed at the IWTP:
 - Routine operation and maintenance.
- Site Operations
 - The most recent OU3 site fence inspections were completed on July 27, 2016. There were no issues noted; all fencing was found secure and "No Trespassing" signs were intact. No repairs were necessary.

Summary of Work Planned for the Next Reporting Period:

- The DePue Group will submit a response to IEPA comments on the SLERA/BERA Work Plan.
- The DePue Group will continue to prepare the OU3 groundwater model.
- The DePue Group will continue routine operation and maintenance at the IWTP.
- The DePue Group will evaluate options for maintenance recommendations identified in the IWTP tank inspection memorandum.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- None

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

IV. OPERABLE UNIT 4: OFF-SITE SOIL

Summary of Work Performed during the Reporting Period:

- Proposed Plan
 - CBS Operations submitted comments on the OU4 Proposed Plan to IEPA on July 25, 2016.

- Remedial Design
 - The DePue Group continued to prepare the OU4 Remedial Design Report in accordance with the Remedial Design (RD) outline discussed with IEPA.

Summary of Work Planned for the Next Reporting Period:

- The DePue Group will continue to prepare the OU4 RD Report.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- None

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

V. OPERABLE UNIT 5: DEPUÉ LAKE AND FLOODPLAIN

Summary of Work Performed during the Reporting Period:

- DePue Lake Risk Assessments
 - The DePue Group submitted a Reference Area Selection Technical Memorandum to IEPA on July 1, 2016.
 - The DePue Group received IEPA's comments on the revised Supplemental Sediment Investigation Work Plan on July 22, 2016.

Summary of Work Planned for the Next Reporting Period:

- DePue Lake Risk Assessments
 - The DePue Group will submit a response to IEPA's comments on the Supplemental Sediment Investigation Work Plan.
 - The DePue Group will coordinate with Illinois Environmental Protection Agency (IEPA) and Illinois Department of Natural Resources (IDNR) to conduct a water quality equipment evaluation on Lake DePue in support of the implementation of supplemental investigations.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- Additional requirements necessary to address OU1 (South Ditch Sediments), if any, will be completed as part of the scope of work for OU5 (DePue Lake and Floodplain).
- The Supplemental Sediment Investigation has been postponed pending resolution to IEPA's comments on the work plan.

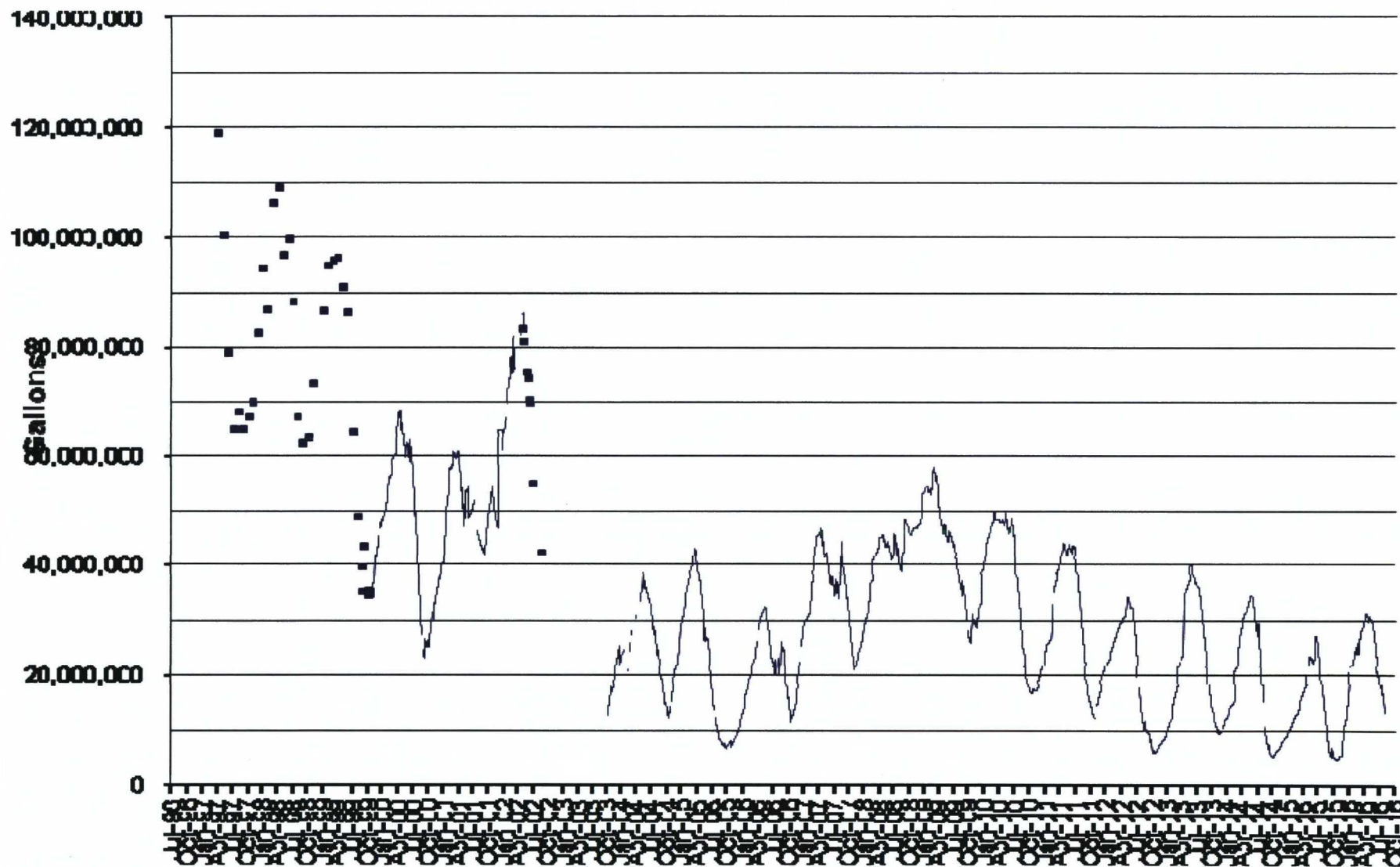
Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

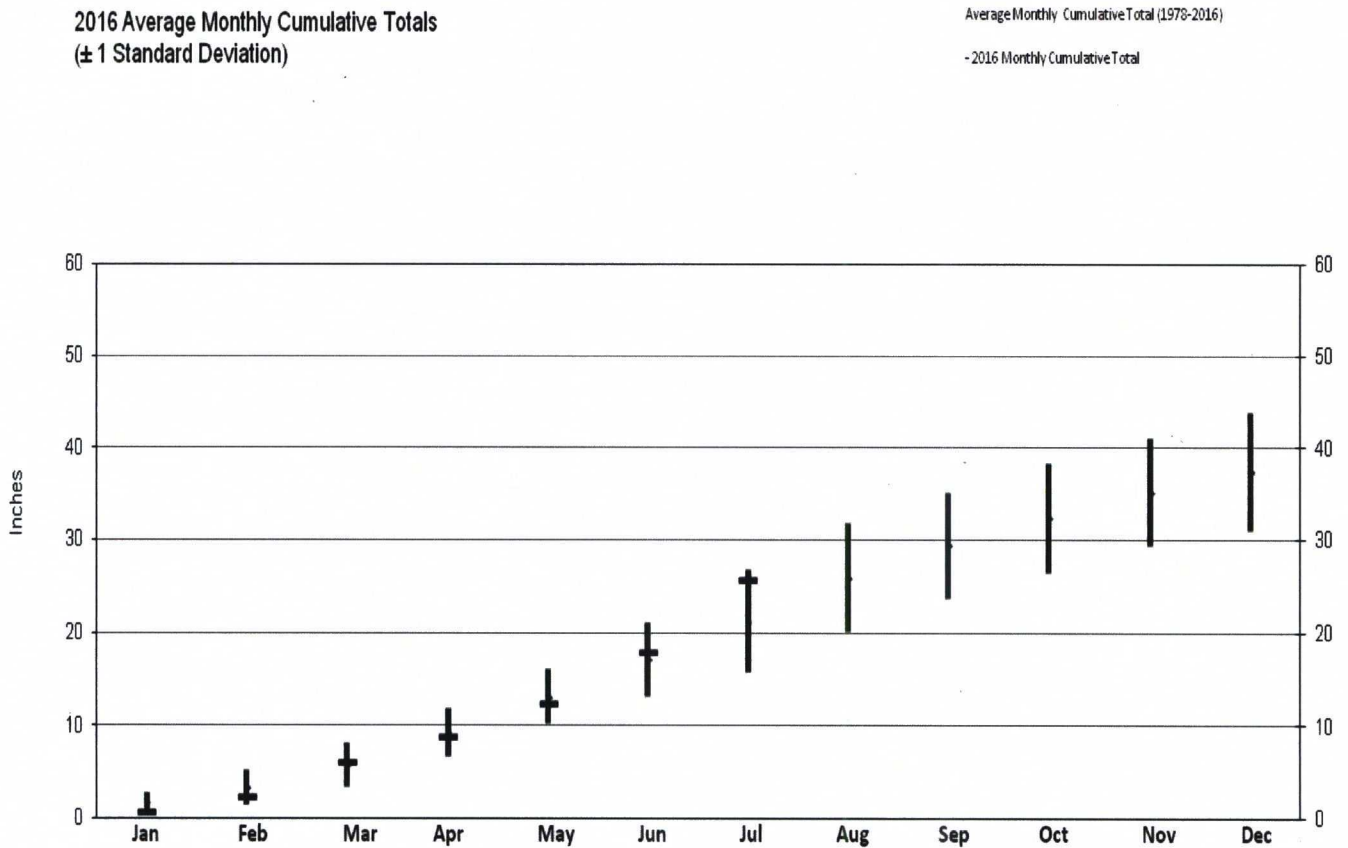
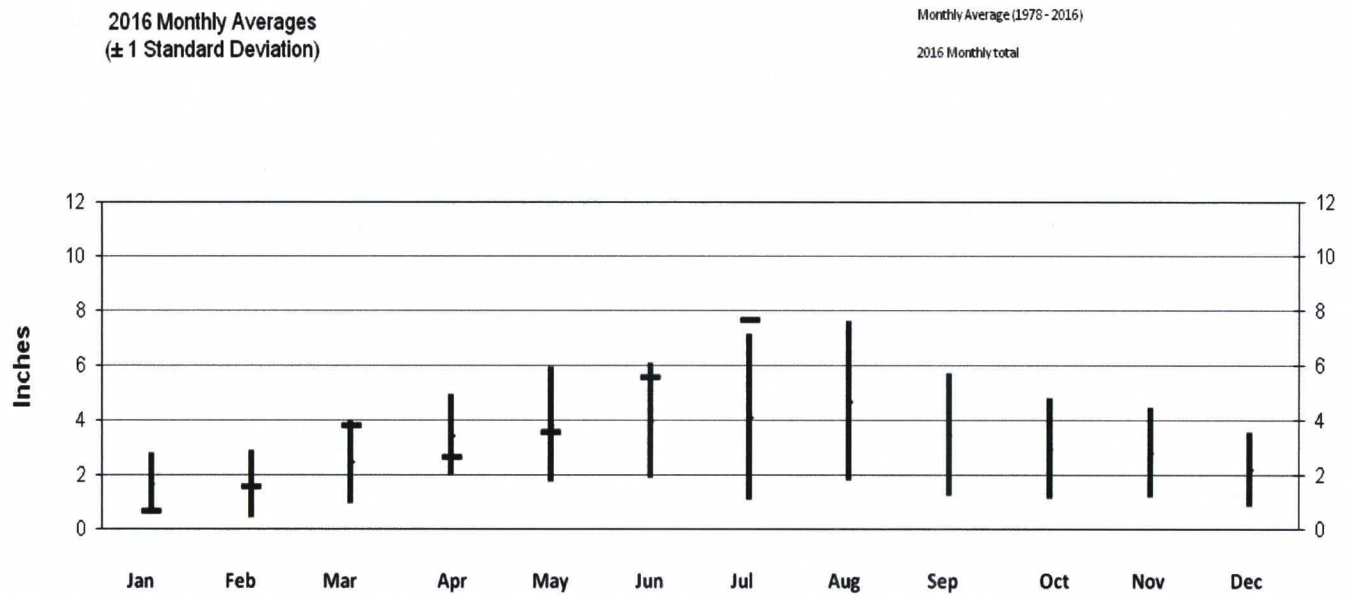
ATTACHMENT 1

Gypstack

Surface-Water Volumes within the Phosphogypsum Stack System



1978 Through 2016 DePue Site Precipitation



Analytical Results for Samples Collected at the 002 Outfall (mg/L)

Sample Collection Date	pH (S.U.)	Total Dissolved Solids (mg/L)	Total Phosphorus (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	Ammonia-Nitrogen (mg/L)	Unionized Ammonia (mg/L)
1/06/16	7.89	491	0.396	0.512	90.8	0.111	<0.00100
2/03/16	7.63	312	0.911	0.368	73.9	0.190	<0.00100
2/17/16	7.11	498	0.362	0.536	96.7	0.438	<0.00100
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4/05/16	6.99	475	0.448	0.547	105	<0.0643	<0.00100
4/20/16	7.43	473	0.516	0.590	117	0.735	0.00588
4/28/16	7.34	513	0.613	0.569	126	<0.100	<0.00100
5/05/16	7.80	480	0.477	0.537	106	0.178	0.00413
5/17/16	7.99	472	0.349	0.387	95.7	0.0626	0.00195
6/01/16	8.24	508	0.549	0.401	83.0	0.125	0.00818
6/14/16	8.29	509	1.29	0.931	198	0.430	0.0447
6/15/16	8.24	330	0.817	0.502	49.7	0.271	0.0263
6/23/16	8.25	328	0.518	0.352	45.7	0.133	0.0135
7/06/16	8.26	333	0.560	0.423	64.8	0.159	0.0162
7/14/16	8.15	338	0.344	0.432	52.9	0.0958	0.00758
7/22/16	8.21	406	0.495	0.497	72.0	0.256	0.0248
Former Permit IL 0032182 Limits	6.5 – 9	1,000	Report	1.4	500	15	0.04

Note: The concentration of Unionized Ammonia detected was above the former permit limit (in bold type above from 6/14/16). The discharge flow rate when the sample was collected was 0.272 MGD. An additional sample was collected 6/15/16 and was analyzed by the laboratory resulting in 0.0263 (mg/L) for Unionized Ammonia.

ATTACHMENT 2

Summary of Sampling Results DePue Interim Water Treatment Plant

Interim Consent Order Report
 July, 2016
 Summary Of Analytical Results
 DePue Interim Water Treatment Plant

Influent Data (mg/L)

Date	TSS	Cadmium	Copper	Iron	Manganese	Nickel	Lead	Zinc	pH- std units	Lift Station Flow (gpm)
01/05/16	68	1 8	36	2 4	29	<1 0	<1 0	640	5 88	32
02/02/16	14	1 3	30	1 1	27	<1 0	<1 0	610	5 90	22
03/02/16	16	1 4	35	0 8	28	0 6	0 4	630	5 90	30
04/05/16	110	1 3	35	1 6	23	0 5	0 6	530	5 86	36
05/03/16	49	1 0	22	<1 0	19	<1 0	<1 0	420	5 88	18
06/07/16	18	1 3	34	0 8	27	0 5	0 5	600	5 80	12
07/05/16	400	1 3	55	3 1	31	1 8	<1 0	650	5 86	17
YTD Average	96	1 3	35	1 5	26	0 9	0 8	583	5 87	24

Notes

1 Values preceded by "<" were not detected greater than the laboratory method detection limit shown

Interim Consent Order Report
July, 2016
Summary Of Analytical Results
DePue Interim Water Treatment Plant

Effluent Data (mg/L)

Date	TSS	Cadmium	Copper	Iron	Manganese	Nickel	Lead	Zinc	pH - std units
01/05/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 00
01/12/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 12	7 02
01/19/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 00
01/26/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 24	7 10
02/02/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 12	7 00
02/09/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 46
02/16/16	6 4	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 13	7 00
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03/29/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 00
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07/26/16	4 8	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 25	7 00

YTD Avg	4 5	0 02	0 10	0 10	0 10	0 10	0 10	0 15	7 10
Jul Avg	4 2	0 02	0 1	0 1	0 1	0 1	0 1	0 24	7 13
Jul Max	4 8	0 02	0 1	0 1	0 1	0 1	0 1	0 35	7 44

DISCHARGE LIMITS (mg/l)

	TSS	Cadmium	Copper	Iron	Maganese	Nickel	Lead	Zinc	pH-std units
Daily Max	30	0 3	1	4	2	2	0 4	2	6-9
Monthly Avg	15	0 15	0 5	2	1	1	0 2	1	6-9

Notes

1 Values preceded by "<" were not detected greater than the laboratory method detection limit shown

Via Electronic Mail

Ms. Charlene Falco
Illinois Environmental Protection Agency
Bureau of Land, #24
Federal Site Remediation Section, Federal Facilities Unit
1021 North Grand Avenue East
Springfield, IL 62702

**Re: Monthly Progress Report – August 2016
Interim Consent Order Activities
DePue Site, DePue, Illinois

People of the State of Illinois vs Horsehead Ind., et al.
Case Number 95 CH 18
Site ID 0110300003 – Bureau**

Dear Ms. Falco:

September 15, 2016

This progress report is being submitted by Ramboll Environ US Corporation (Ramboll Environ), on behalf of the DePue Group. The attached progress report addresses the Interim Consent Order (ICO) activities conducted from August 1 to August 31, 2016 at the DePue Site. The report also indicates planned activities for the next reporting period.

Ramboll Environ
333 West Wacker Drive
Suite 2700
Chicago, IL 60606
USA

This report complies with the requirements of the ICO, Section XVI, paragraph C, and Attachment 1, paragraph 12.

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www.ramboll-environ.com

If you have any questions, please call.

Sincerely,

Ramboll Environ US Corporation



Scott Hayter
Principal

Attachment

**MONTHLY PROGRESS REPORT
FOR
AUGUST 2016**

**INTERIM CONSENT ORDER ACTIVITIES
DEPUE SITE
DEPUE, ILLINOIS**

Prepared For:

Illinois Environmental Protection Agency
1021 North Grand Avenue, East
Post Office Box 19276
Springfield, Illinois 62794-9276

DISTRIBUTION:

2 copies – Charlene Falco, Illinois Environmental Protection Agency
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1 copy – David Rigg, ARCADIS (electronic copy only)
1 copy – Mark Travers, Ramboll Environ US Corporation (electronic copy only)
1 copy – Eric Bryant, Village of DePue (electronic copy only)
1 copy – Tony Wlodarski, AMEC (electronic copy only)

I OPERABLE UNIT 1: SOUTH DITCH SEDIMENT

- Completed

II. OPERABLE UNIT 2: PHOSPHOGYPSUM STACK

Summary of Work Performed during the Reporting Period:

- Routine maintenance and monitoring activities continued at the phosphogypsum stack. These activities included pumping, observing and recording flow and water levels, maintaining storm water diversion systems (catch basins, dams, and discharge piping), measuring flow and collecting samples at the 002 Outfall when applicable, inspecting, monitoring and maintaining ground-water collection and pumping systems, inspecting and maintaining cover integrity and supporting and maintaining the Health and Safety program.
- The center pivot irrigation system discharged 7.2 million gallons during the month of August. During August the treatment wetland operations were suspended to allow for the planting of additional cattails. Treatment wetlands operations were restarted August 25, 2016.
- As of September 1, 2016, 169.3 million gallons of water had been discharged through the treatment wetland. Flow rates and discharge are logged daily, Monday through Friday and reported monthly to the IEPA.
- Four samples were collected from Outfall 002 during August 2016.
- The final draft of the Final Closure Plan was submitted to the IEPA on August 2, 2016.
- A response to comments on the Final Design Report was submitted to the IEPA on August 16, 2016.

Summary of Work Planned for the Next Reporting Period:

- Continue routine maintenance and monitoring activities within the phosphogypsum stack system.
- Continue the re-evaluation of regulatory requirements, closure design, contractor technical submittals, specifications and bid documents for implementation of the Closure of the Phosphogypsum Stack System.
- Await confirmation from IEPA on the Final Closure Plan and submit final.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- None

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

III. OPERABLE UNIT 3: PLANT SITE

Summary of Work Performed during the Reporting Period:

- Risk Assessment
 - The DePue Group prepared a preliminary response to IEPA's June 20, 2016 comments on the Ecological Risk Assessment/Baseline Ecological Risk Assessment (SLERA/BERA) Work Plan.
 - The DePue Group continued to prepare the OU3 groundwater model.
- Interim Water Treatment Plant (IWTP) Operations
 - The IWTP treated 739,325 gallons of water during August 2016. The influent and effluent data are included in Attachment 2:
 - Approximately 3,700 pounds of zinc were removed.
 - Approximately 170 pounds of manganese were removed.
 - Approximately 200 pounds of copper were removed.
 - The following activities were completed at the IWTP:
 - Routine operation and maintenance.
- Site Operations
 - The most recent OU3 site fence inspections were completed on August 25, 2016. There were no issues noted; all fencing was found secure and "No Trespassing" signs were intact. No repairs were necessary.
 - On August 30, 2016, there was a break-in at the building housing the IWTP. A few tools were missing, but minimal damage was caused inside the building and the treatment system operations were not affected. A police report was filed and a follow-up fence inspection was conducted and found no obvious point of entry. In response to this incident, the Group is evaluating options for improving site security.

Summary of Work Planned for the Next Reporting Period:

- The DePue Group will submit a response to IEPA comments on the SLERA/BERA Work Plan.
- The DePue Group will continue to prepare the OU3 groundwater model.
- The DePue Group will continue routine operation and maintenance at the IWTP.
- The DePue Group will evaluate options for maintenance recommendations identified in the IWTP tank inspection memorandum.

Problems Encountered/Resolved:

- As detailed above, there was a break-in at the building housing the IWTP. In response to this incident, the Group is evaluating options for improving site security.

Revisions to Scopes of Work and Schedules:

- None

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

IV. OPERABLE UNIT 4: OFF-SITE SOIL

Summary of Work Performed during the Reporting Period:

- Proposed Plan of Remedial Action
 - The DePue Group provided supplementary comments to IEPA on August 15, 2016 to highlight the legal holding and potential impact of the US Ninth Circuit Federal Court of Appeals decision in the Teck case.
- Remedial Design
 - The DePue Group continued to prepare the OU4 Remedial Design Report in accordance with the Remedial Design (RD) outline discussed with IEPA.

Summary of Work Planned for the Next Reporting Period:

- The DePue Group will follow up with IEPA regarding the supplementary comments.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- None

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

V. OPERABLE UNIT 5: DEPUE LAKE AND FLOODPLAIN

Summary of Work Performed during the Reporting Period:

- DePue Lake Risk Assessments
 - The DePue Group is preparing a response to IEPA's July 22, 2016 comments on the revised Supplemental Sediment Investigation Work Plan and Reference Area Selection Technical Memorandum.
 - The DePue Group submitted a work plan for conducting a water quality equipment evaluation on Lake DePue in support of the implementation of supplemental investigations. The evaluation will be conducted beginning in early September and be completed before the start of the 2016 duck hunting season.

Summary of Work Planned for the Next Reporting Period:

- DePue Lake Risk Assessments
 - The DePue Group will submit a response to IEPA's comments on the Supplemental Sediment Investigation Work Plan and Reference Area Selection Technical Memorandum.
 - The DePue Group will begin a water quality equipment evaluation on Lake DePue in support of the implementation of supplemental investigations.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

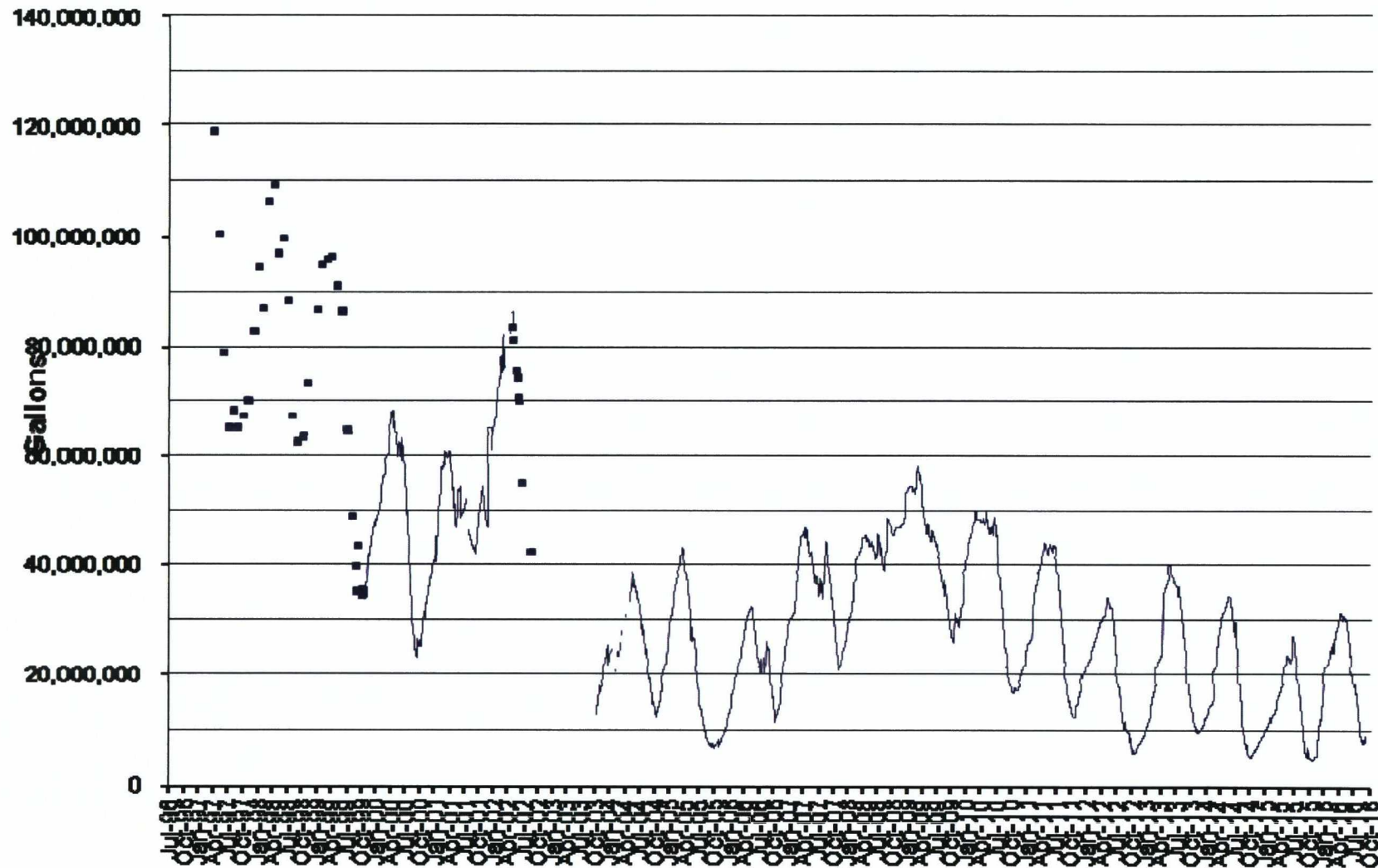
- Additional requirements necessary to address OU1 (South Ditch Sediments), if any, will be completed as part of the scope of work for OU5 (DePue Lake and Floodplain).
- The Supplemental Sediment Investigation has been postponed pending resolution to IEPA's comments on the work plan.

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

ATTACHMENT 1
Gypstack

Surface-Water Volumes within the Phosphogypsum Stack System

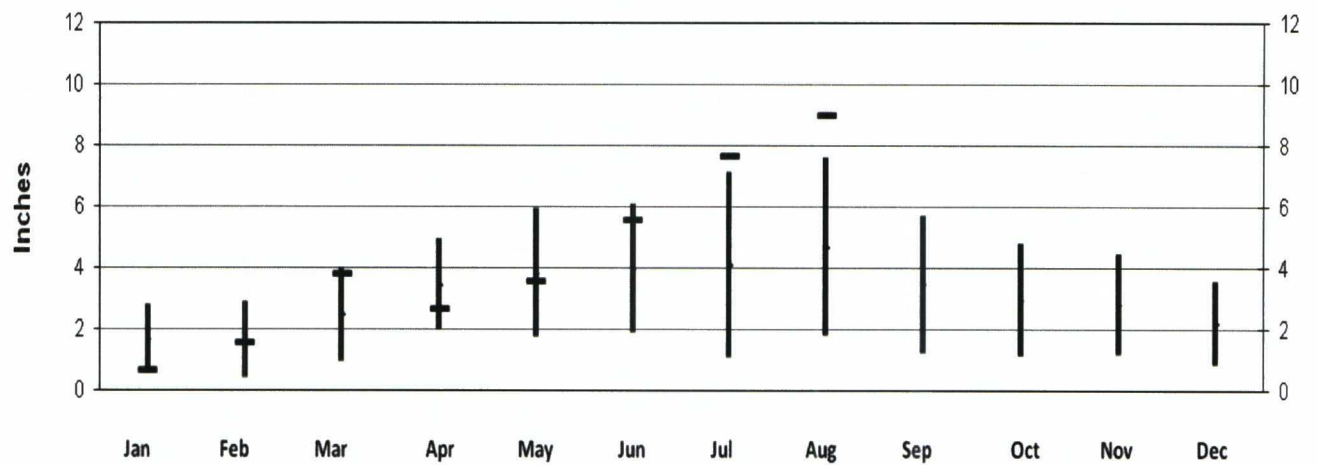


1978 Through 2016 DePue Site Precipitation

2016 Monthly Averages
(± 1 Standard Deviation)

Monthly Average (1978 - 2016)

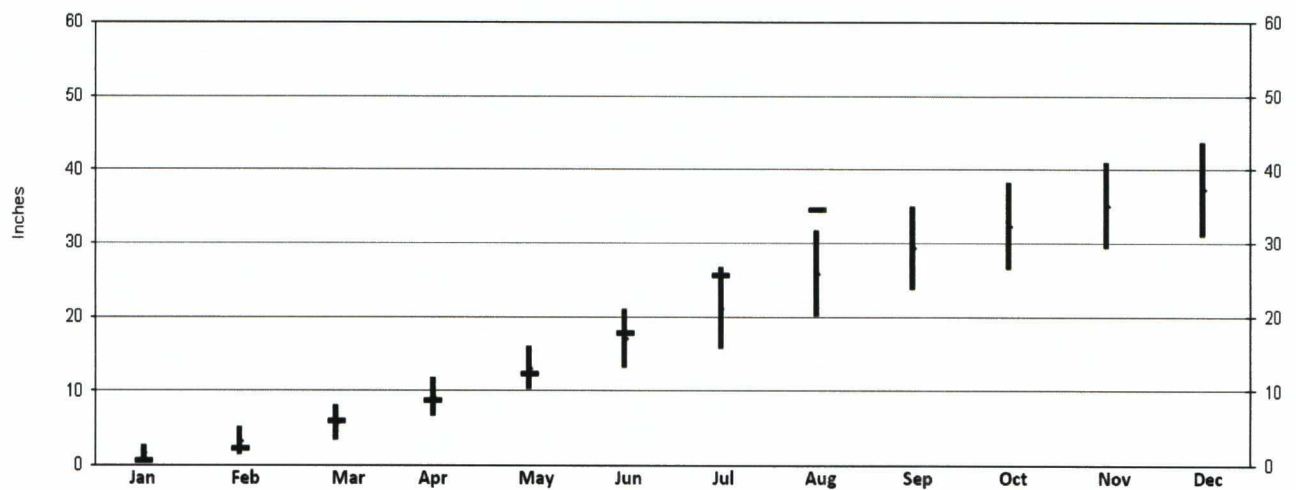
2016 Monthly total



2016 Average Monthly Cumulative Totals
(± 1 Standard Deviation)

Average Monthly Cumulative Total (1978-2016)

2016 Monthly Cumulative Total



Analytical Results for Samples Collected at the 002 Outfall (mg/L)

Sample Collection Date	pH (S.U.)	Total Dissolved Solids (mg/L)	Total Phosphorus (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	Ammonia-Nitrogen (mg/L)	Unionized Ammonia (mg/L)
1/06/16	7.89	491	0.396	0.512	90.8	0.111	<0.00100
2/03/16	7.63	312	0.911	0.368	73.9	0.190	<0.00100
2/17/16	7.11	498	0.362	0.536	96.7	0.438	<0.00100
3/01/16	7.20	537	0.605	0.786	137	0.178	<0.00100
3/17/16	7.60	477	0.365	0.502	115	<0.100	<0.00100
4/05/16	6.99	475	0.448	0.547	105	0.0643	<0.00100
4/20/16	7.43	473	0.516	0.590	117	0.735	0.00588
4/28/16	7.34	513	0.613	0.569	126	<0.100	<0.00100
5/05/16	7.80	480	0.477	0.537	106	0.178	0.00413
5/17/16	7.99	472	0.349	0.387	95.7	0.0626	0.00195
6/01/16	8.24	508	0.549	0.401	83.0	0.125	0.00818
6/14/16	8.29	509	1.29	0.931	198	0.430	0.0447
6/15/16	8.24	330	0.817	0.502	49.7	0.271	0.0263
6/23/16	8.25	328	0.518	0.352	45.7	0.133	0.0135
7/06/16	8.26	333	0.560	0.423	64.8	0.159	0.0162
7/14/16	8.15	338	0.344	0.432	52.9	0.0958	0.00758
7/22/16	8.21	406	0.495	0.497	72.0	0.256	0.0248
8/04/16	8.09	480	0.693	0.893	87.4	<0.100	<0.00100
8/12/16	8.16	334	0.539	0.478	79.8	0.371	0.0321
8/19/16	8.33	551	0.659	0.863	149	0.125	0.0168
8/30/16	8.30	336	1.07	0.556	53.7	0.150	0.0138
Former Permit IL 0032182 Limits	6.5 – 9	1,000	Report	1.4	500	15	0.04

Note: The concentration of Unionized Ammonia detected was above the former permit limit (in bold type above from 6/14/16). The discharge flow rate when the sample was collected was 0.272 MGD. An additional sample was collected 6/15/16 and was analyzed by the laboratory resulting in 0.0263 (mg/L) for Unionized Ammonia.

Analytical Results for Samples Collected Quarterly at the Duck Pond, Lower Swale, Upper Swale, Clear Water Pond (mg/L)

Sample Collection Date	pH (S.U.)	Total Dissolved Solids (mg/L)	Total Phosphorus (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	Ammonia-Nitrogen (mg/L)
Duck Pond						
2/08/16	FROZEN					
5/05/16	8.56	474	0.0950	0.738	145	0.187
8/04/16	Dry					
Lower Swale						
2/08/16	7.19	2530	67.4	3.21	1290	36.9
5/05/16	7.48	2190	69.9	3.50	1150	1.94
8/04/16	7.07	2830	83.2	3.62	1350	23.0
Upper Swale						
2/08/16	7.00	3430	60.4	3.60	2130	45.3
5/05/16	7.47	3130	60.4	3.50	1960	26.0
8/04/16	6.88	3820	65.1	2.97	2320	37.4
Clear Water Pond						
2/08/16	FROZEN					
5/05/16	7.27	2570	62.0	5.22	1630	18.8
8/04/16	6.97	2830	59.9	4.77	1720	14.0

ATTACHMENT 2

**Summary of Sampling Results
DePue Interim Water Treatment Plant**

Interim Consent Order Report
August, 2016
Summary Of Analytical Results
DePue Interim Water Treatment Plant

Influent Data (mg/L)

Date	TSS	Cadmium	Copper	Iron	Manganese	Nickel	Lead	Zinc	pH- std units	Lift Station Flow (gpm)
01/05/16	68	1.8	36	2.4	29	<1.0	<1.0	640	5.88	32
02/02/16	14	1.3	30	1.1	27	<1.0	<1.0	610	5.90	22
03/02/16	16	1.4	35	0.8	28	0.6	0.4	630	5.90	30
04/05/16	110	1.3	35	1.6	23	0.5	0.6	530	5.86	36
05/03/16	49	1.0	22	<1.0	19	<1.0	<1.0	420	5.88	18
06/07/16	18	1.3	34	0.8	27	0.5	0.5	600	5.80	12
07/05/16	400	1.3	55	3.1	31	1.8	<1.0	650	5.86	17
08/02/16	35	1.2	33	1.7	28	<1.0	<1.0	600	5.80	15
YTD Average	89	1.3	35	1.6	27	0.9	0.8	585	5.86	23

Notes

1 Values preceded by "<" were not detected greater than the laboratory method detection limit shown

Interim Consent Order Report
August, 2016
Summary Of Analytical Results
DePue Interim Water Treatment Plant

Effluent Data (mg/L)

Date	TSS	Cadmium	Copper	Iron	Manganese	Nickel	Lead	Zinc	pH - std units
01/05/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 00
01/12/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 12	7 02
01/19/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 00
01/26/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 24	7 10
02/02/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 12	7 00
02/09/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 46
02/16/16	6 4	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 13	7 00
02/23/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 00
03/02/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 31	7 66
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03/22/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 13	7 06
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04/05/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 14	7 06
04/12/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 13	7 00
04/19/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 22	7 02
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07/26/16	4 8	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 25	7 00
08/02/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 42	7 22
08/09/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 45	7 00
08/16/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 17	7 00
08/23/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 16	7 00
08/30/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 02

YTD Avg	4 4	0 02	0 10	0 10	0 10	0 10	0 10	0 17	7 10
Aug Avg	4 0	0 02	0 1	0 1	0 1	0 1	0 1	0 27	7 05
Aug Max	4 0	0 02	0 1	0 1	0 1	0 1	0 1	0 45	7 22

DISCHARGE LIMITS (mg/l)

	TSS	Cadmium	Copper	Iron	Maganese	Nickel	Lead	Zinc	pH-std units
Daily Max	30	0 3	1	4	2	2	0 4	2	6-9
Monthly Avg	15	0 15	0 5	2	1	1	0 2	1	6-9

Notes

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Via Electronic Mail

Ms. Charlene Falco
Illinois Environmental Protection Agency
Bureau of Land, #24
Federal Site Remediation Section, Federal Facilities Unit
1021 North Grand Avenue East
Springfield, IL 62702

**Re: Monthly Progress Report – September 2016
Interim Consent Order Activities
DePue Site, DePue, Illinois

People of the State of Illinois vs Horsehead Ind., et al.
Case Number 95 CH 18
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October 17, 2016

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Ramboll Environ
333 West Wacker Drive
Suite 2700
Chicago, IL 60606
USA

This report complies with the requirements of the ICO, Section XVI, paragraph C, and Attachment 1, paragraph 12.

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www.ramboll-environ.com

If you have any questions, please call.

Sincerely,

Ramboll Environ US Corporation


Scott Hayter
Principal

Attachment

**MONTHLY PROGRESS REPORT
FOR
SEPTEMBER 2016**

**INTERIM CONSENT ORDER ACTIVITIES
DEPUE SITE
DEPUE, ILLINOIS**

Prepared For:

Illinois Environmental Protection Agency
1021 North Grand Avenue, East
Post Office Box 19276
Springfield, Illinois 62794-9276

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1 copy – David Rigg, ARCADIS (electronic copy only)
1 copy – Mark Travers, Ramboll Environ US Corporation (electronic copy only)
1 copy – Eric Bryant, Village of DePue (electronic copy only)
1 copy – Tony Wlodarski, AMEC (electronic copy only)

I OPERABLE UNIT 1: SOUTH DITCH SEDIMENT

- Completed

II. OPERABLE UNIT 2: PHOSPHOGYPSUM STACK

Summary of Work Performed during the Reporting Period:

- Routine maintenance and monitoring activities continued at the phosphogypsum stack. These activities included pumping, observing and recording flow and water levels, maintaining storm water diversion systems (catch basins, dams, and discharge piping), measuring flow and collecting samples at the 002 Outfall when applicable, inspecting, monitoring and maintaining ground-water collection and pumping systems, inspecting and maintaining cover integrity and supporting and maintaining the Health and Safety program.
- The center pivot irrigation system discharged 7.8 million gallons during the month of September.
- As of October 3, 2016, 169.9 million gallons of water had been discharged through the treatment wetland. Flow rates and discharge are logged daily, Monday through Friday and reported monthly to the IEPA.
- Three samples were collected from Outfall 002 during September 2016.

Summary of Work Planned for the Next Reporting Period:

- Continue routine maintenance and monitoring activities within the phosphogypsum stack system.
- Initiate the 2016 Annual Ground Water, Surface Water and Seep Sampling Event as provided in the Final Closure Plan.
- Identify and evaluate additional borrow soil sites to be used for the Closure of the Phosphogypsum Stack System.
- Continue the re-evaluation of regulatory requirements, closure design, contractor technical submittals, specifications and bid documents for implementation of the Closure of the Phosphogypsum Stack System.
- Await confirmation from IEPA on the Final Closure Plan and submit final.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- None

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

III. OPERABLE UNIT 3: PLANT SITE

Summary of Work Performed during the Reporting Period:

- Risk Assessment
 - The DePue Group submitted a response to IEPA's June 20, 2016 comments on the Ecological Risk Assessment/Baseline Ecological Risk Assessment (SLERA/BERA) Work Plan on September 30, 2016.
 - The DePue Group continued to prepare the OU3 groundwater model.

- Interim Water Treatment Plant (IWTP) Operations
 - The IWTP treated 820,929 gallons of water during September 2016. The influent and effluent data are included in Attachment 2:
 - Approximately 4,100 pounds of zinc were removed.
 - Approximately 190 pounds of manganese were removed.
 - Approximately 220 pounds of copper were removed.
 - The following activities were completed at the IWTP:
 - Routine operation and maintenance.
- Site Operations
 - The most recent OU3 site fence inspections were completed on September 29, 2016. There were no issues noted; all fencing was found secure and “No Trespassing” signs were intact. No repairs were necessary.

Summary of Work Planned for the Next Reporting Period:

- The DePue Group will continue to prepare the OU3 groundwater model.
- The DePue Group will continue routine operation and maintenance at the IWTP.
- The DePue Group will evaluate options for maintenance recommendations identified in the IWTP tank inspection memorandum.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- None

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- Ryan Keeler (Ramboll Environ Project Manager) has transitioned to a new position with one of Ramboll Environ’s clients. Project management responsibilities have been transitioned to Scott Hayter.

IV. OPERABLE UNIT 4: OFF-SITE SOIL

Summary of Work Performed during the Reporting Period:

- Proposed Plan of Remedial Action
 - The DePue Group started the process of selecting a consultant to conduct soil sampling and management of the OU4 remedial action on September 9, 2016.
- Remedial Design
 - The DePue Group continued to prepare the OU4 Remedial Design Report in accordance with the Remedial Design (RD) outline discussed with IEPA.

Summary of Work Planned for the Next Reporting Period:

- The DePue Group will follow up with IEPA regarding the supplementary comments.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- None

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- Ramboll Environ project management responsibilities have been transitioned to Scott Hayter.

V. OPERABLE UNIT 5: DEPUÉ LAKE AND FLOODPLAIN

Summary of Work Performed during the Reporting Period:

- DePue Lake Risk Assessments
 - The DePue Group is preparing a response to IEPA's July 22, 2016 comments on the revised Supplemental Sediment Investigation Work Plan and Reference Area Selection Technical Memorandum.
 - The DePue Group is conducting a water quality equipment evaluation on Lake DePue in support of the implementation of supplemental investigations.

Summary of Work Planned for the Next Reporting Period:

- DePue Lake Risk Assessments
 - The DePue Group will submit a response to IEPA's comments on the Supplemental Sediment Investigation Work Plan and Reference Area Selection Technical Memorandum.
 - The DePue Group will complete the water quality equipment evaluation on Lake DePue on October 6, 2016.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- Additional requirements necessary to address OU1 (South Ditch Sediments), if any, will be completed as part of the scope of work for OU5 (DePue Lake and Floodplain).
- The Supplemental Sediment Investigation has been postponed pending resolution to IEPA's comments on the work plan.

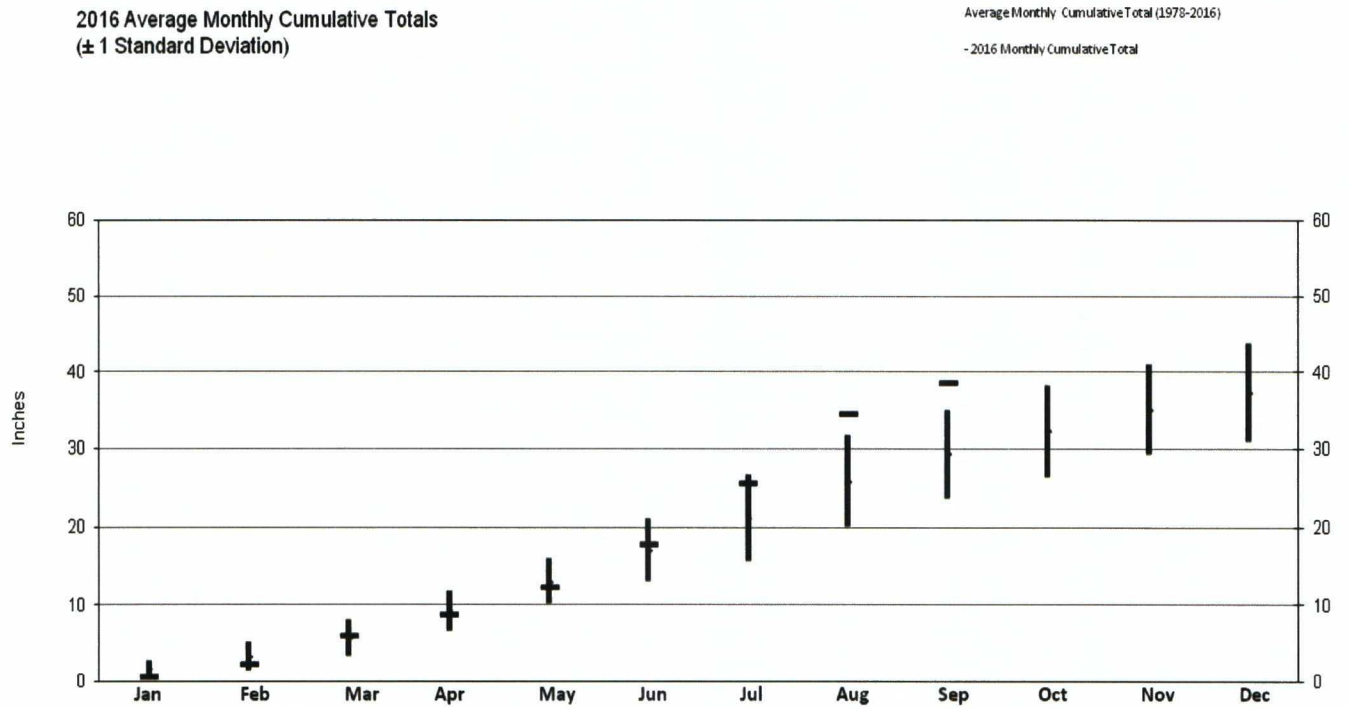
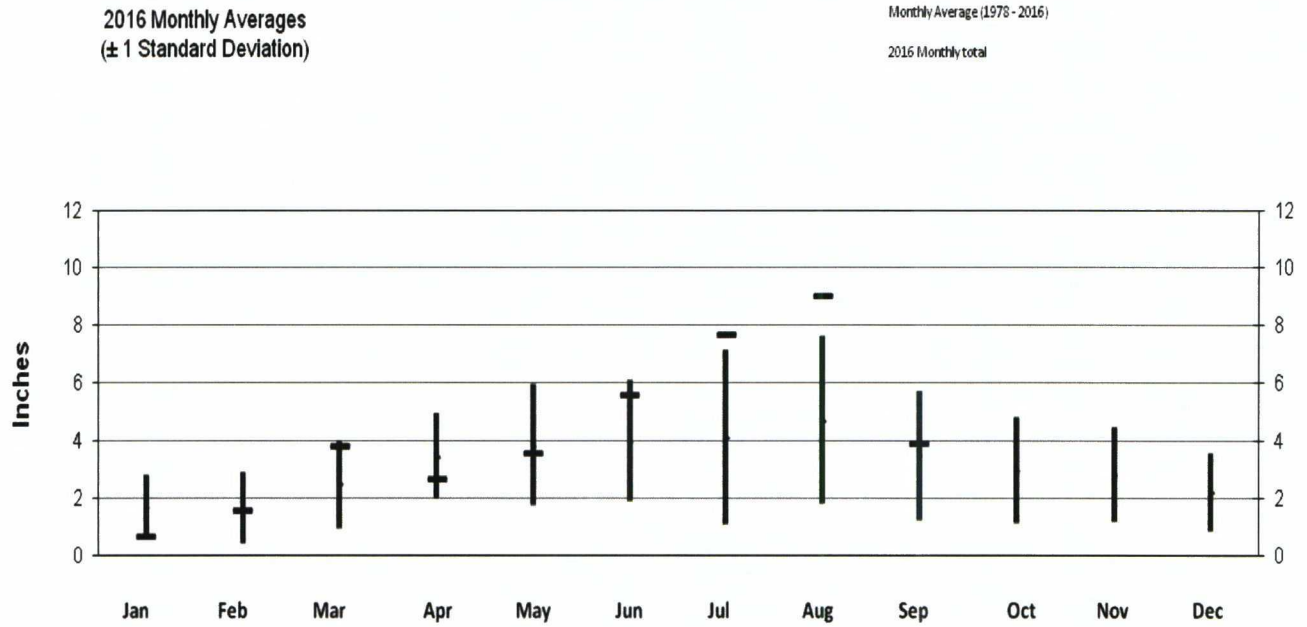
Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

ATTACHMENT 1

Gypstack

1978 Through 2016 DePue Site Precipitation



Analytical Results for Samples Collected at the 002 Outfall (mg/L)

Sample Collection Date	pH (S.U.)	Total Dissolved Solids (mg/L)	Total Phosphorus (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	Ammonia-Nitrogen (mg/L)	Unionized Ammonia (mg/L)
1/06/16	7.89	491	0.396	0.512	90.8	0.111	<0.00100
2/03/16	7.63	312	0.911	0.368	73.9	0.190	<0.00100
2/17/16	7.11	498	0.362	0.536	96.7	0.438	<0.00100
3/01/16	7.20	537	0.605	0.786	137	0.178	<0.00100
3/17/16	7.60	477	0.365	0.502	115	<0.100	<0.00100
4/05/16	6.99	475	0.448	0.547	105	0.0643	<0.00100
4/20/16	7.43	473	0.516	0.590	117	0.735	0.00588
4/28/16	7.34	513	0.613	0.569	126	<0.100	<0.00100
5/05/16	7.80	480	0.477	0.537	106	0.178	0.00413
5/17/16	7.99	472	0.349	0.387	95.7	0.0626	0.00195
6/01/16	8.24	508	0.549	0.401	83.0	0.125	0.00818
6/14/16	8.29	509	1.29	0.931	198	0.430	0.0447
6/15/16	8.24	330	0.817	0.502	49.7	0.271	0.0263
6/23/16	8.25	328	0.518	0.352	45.7	0.133	0.0135
7/06/16	8.26	333	0.560	0.423	64.8	0.159	0.0162
7/14/16	8.15	338	0.344	0.432	52.9	0.0958	0.00758
7/22/16	8.21	406	0.495	0.497	72.0	0.256	0.0248
8/04/16	8.09	480	0.693	0.893	87.4	<0.100	<0.00100
8/12/16	8.16	334	0.539	0.478	79.8	0.371	0.0321
8/19/16	8.33	551	0.659	0.863	149	0.125	0.0168
8/30/16	8.30	336	1.07	0.556	53.7	0.150	0.0138
9/01/16	8.39	473	0.519	0.474	76.8	0.122	0.0141
9/08/16	8.25	358	0.608	0.516	59.2	<0.100	<0.00100
9/22/16	8.26	499	0.649	0.488	101	<0.100	<0.00100
Former Permit IL 0032182 Limits	6.5 – 9	1,000	Report	1.4	500	15	0.04

Note: The concentration of Unionized Ammonia detected was above the former permit limit (in bold type above from 6/14/16). The discharge flow rate when the sample was collected was 0.272 MGD. An additional sample was collected 6/15/16 and was analyzed by the laboratory resulting in 0.0263 (mg/L) for Unionized Ammonia.

ATTACHMENT 2

Summary of Sampling Results

DePue Interim Water Treatment Plant

Interim Consent Order Report
September, 2016
Summary Of Analytical Results
DePue Interim Water Treatment Plant

Influent Data (mg/L)

Date	TSS	Cadmium	Copper	Iron	Manganese	Nickel	Lead	Zinc	pH- std units	Lift Station Flow (gpm)
01/05/16	68	1.8	36	2.4	29	<1.0	<1.0	640	5.88	32
02/02/16	14	1.3	30	1.1	27	<1.0	<1.0	610	5.90	22
03/02/16	16	1.4	35	0.8	28	0.6	0.4	630	5.90	30
04/05/16	110	1.3	35	1.6	23	0.5	0.6	530	5.86	36
05/03/16	49	1.0	22	<1.0	19	<1.0	<1.0	420	5.88	18
06/07/16	18	1.3	34	0.8	27	0.5	0.5	600	5.80	12
07/05/16	400	1.3	55	3.1	31	1.8	<1.0	650	5.86	17
08/02/16	35	1.2	33	1.7	28	<1.0	<1.0	600	5.80	15
09/06/16	8	1.0	29	<1.0	26	<1.0	<1.0	520	6.00	14
YTD Average	80	1.3	34	1.5	26	0.9	0.8	578	5.88	22

Notes

1. Values preceded by "<" were not detected greater than the laboratory method detection limit shown

Interim Consent Order Report
September, 2016
Summary Of Analytical Results
DePue Interim Water Treatment Plant

Effluent Data (mg/L)

Date	TSS	Cadmium	Copper	Iron	Manganese	Nickel	Lead	Zinc	pH - std units
01/05/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	7.00
01/12/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.12	7.02
01/19/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.15	7.00
01/26/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.24	7.10
02/02/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.12	7.00
02/09/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	7.46
02/16/16	6.4	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.13	7.00
02/23/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	7.00
03/02/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.31	7.66
03/09/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	7.00
03/15/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.11	7.12
03/22/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.13	7.06
03/29/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.15	7.00
04/05/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.14	7.06
04/12/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.13	7.00
04/19/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.22	7.02
04/26/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.12	7.00
05/03/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	7.00
05/10/16	16.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	7.44
05/17/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	7.00
05/24/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.13	7.02
05/31/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.14	7.22
06/07/16	<4.0	0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.14	7.44
06/14/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.15	7.00
06/21/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.16	7.00
06/28/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.12	7.00
07/05/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.19	7.44
07/12/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.15	7.00
07/19/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.35	7.08
07/26/16	4.8	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.25	7.00
08/02/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.42	7.22
08/09/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.45	7.00
08/16/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.17	7.00
08/23/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.16	7.00
08/30/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.15	7.02
09/06/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.19	7.66
09/13/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.15	7.22
09/20/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.17	7.00
09/27/16	<4.0	<0.02	<0.10	<0.10	<0.10	<0.10	<0.10	0.21	7.00

YTD Avg	4.4	0.02	0.10	0.10	0.10	0.10	0.10	0.17	7.11
Sep Avg	4.0	0.02	0.1	0.1	0.1	0.1	0.1	0.18	7.22
Sep Max	4.0	0.02	0.1	0.1	0.1	0.1	0.1	0.21	7.66

DISCHARGE LIMITS (mg/l)

	TSS	Cadmium	Copper	Iron	Manganese	Nickel	Lead	Zinc	pH-std units
Daily Max	30	0.3	1	4	2	2	0.4	2	6-9
Monthly Avg	15	0.15	0.5	2	1	1	0.2	1	6-9

Notes

1 Values preceded by "<" were not detected greater than the laboratory method detection limit shown

Via Electronic Mail

Ms. Charlene Falco
Illinois Environmental Protection Agency
Bureau of Land, #24
Federal Site Remediation Section, Federal Facilities Unit
1021 North Grand Avenue East
Springfield, IL 62702

**Re: Monthly Progress Report – October 2016
Interim Consent Order Activities
DePue Site, DePue, Illinois

People of the State of Illinois vs Horsehead Ind., et al.
Case Number 95 CH 18
Site ID 0110300003 – Bureau**

Dear Ms. Falco:

November 15, 2016

This progress report is being submitted by Ramboll Environ US Corporation (Ramboll Environ), on behalf of the DePue Group. The attached progress report addresses the Interim Consent Order (ICO) activities conducted from October 1 to October 31, 2016 at the DePue Site. The report also indicates planned activities for the next reporting period.

Ramboll Environ
333 West Wacker Drive
Suite 2700
Chicago, IL 60606
USA

This report complies with the requirements of the ICO, Section XVI, paragraph C, and Attachment 1, paragraph 12.

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www.ramboll-environ.com

If you have any questions, please call.

Sincerely,

Ramboll Environ US Corporation



Scott Hayter
Principal

Attachment

**MONTHLY PROGRESS REPORT
FOR
OCTOBER 2016**

**INTERIM CONSENT ORDER ACTIVITIES
DEPUE SITE
DEPUE, ILLINOIS**

Prepared For:

Illinois Environmental Protection Agency
1021 North Grand Avenue, East
Post Office Box 19276
Springfield, Illinois 62794-9276

DISTRIBUTION:

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1 copy – Eric Bryant, Village of DePue (electronic copy only)
1 copy – Tony Wlodarski, AMEC (electronic copy only)

I OPERABLE UNIT 1: SOUTH DITCH SEDIMENT

- Completed

II. OPERABLE UNIT 2: PHOSPHOGYPSUM STACK

Summary of Work Performed during the Reporting Period:

- Routine maintenance and monitoring activities continued at the phosphogypsum stack. These activities included pumping, observing and recording flow and water levels, maintaining storm water diversion systems (catch basins, dams, and discharge piping), measuring flow and collecting samples at the 002 Outfall when applicable, inspecting, monitoring and maintaining ground-water collection and pumping systems, inspecting and maintaining cover integrity and supporting and maintaining the Health and Safety program.
- The center pivot irrigation system discharged 2.8 million gallons during the month of October.
- As of November 1, 2016, 170.0 million gallons of water had been discharged through the treatment wetland. Flow rates and discharge are logged daily, Monday through Friday and reported monthly to the IEPA.
- Two samples were collected from Outfall 002 during October 2016.
- Completed the 2016 Annual Ground Water, Surface Water and Seep Sampling Event as provided in the Final Closure Plan.
- Identified and evaluated additional borrow soil sites to be used for the Closure of the Phosphogypsum Stack System.
- Received conditional approval of one borrow soil site from the IEPA on October 12, 2016.

Summary of Work Planned for the Next Reporting Period:

- Continue routine maintenance and monitoring activities within the phosphogypsum stack system.
- Prepare a report for the results from the 2016 Annual Ground Water, Surface Water and Seep Sampling Event as provided in the Final Closure Plan.
- Identify and evaluate additional borrow soil sites to be used for the Closure of the Phosphogypsum Stack System.
- Continue the re-evaluation of regulatory requirements, closure design, contractor technical submittals, specifications and bid documents for implementation of the Closure of the Phosphogypsum Stack System.
- Await confirmation from IEPA on the Final Closure Plan and submit final.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- None

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

III. OPERABLE UNIT 3: PLANT SITE

Summary of Work Performed during the Reporting Period:

- Risk Assessment
 - The DePue Group awaits IEPA's response to the Ecological Risk Assessment/Baseline Ecological Risk Assessment (SLERA/BERA) Work Plan revisions submitted on September 30, 2016.
 - The DePue Group continued to prepare the OU3 groundwater model.
- Interim Water Treatment Plant (IWTP) Operations
 - The IWTP treated 900,751 gallons of water during October 2016. The influent and effluent data are included in Attachment 2:
 - Approximately 4,500 pounds of zinc were removed.
 - Approximately 210 pounds of manganese were removed.
 - Approximately 240 pounds of copper were removed.
 - The following activities were completed at the IWTP:
 - Routine operation and maintenance.
- Site Operations
 - The most recent OU3 site fence inspections were completed on October 27, 2016. There were no issues noted; all fencing was found secure and "No Trespassing" signs were intact. No repairs were necessary.

Summary of Work Planned for the Next Reporting Period:

- The DePue Group will continue to prepare the OU3 groundwater model.
- The DePue Group will submit a Toxicity Reference Value (TRV) memo to IEPA on or before December 12, 2016.
- The DePue Group will continue routine operation and maintenance at the IWTP.
- The DePue Group will evaluate options for maintenance recommendations identified in the IWTP tank inspection memorandum.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- None

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

IV. OPERABLE UNIT 4: OFF-SITE SOIL

Summary of Work Performed during the Reporting Period:

- Proposed Plan of Remedial Action
 - The DePue Group continued the process of selecting a consultant to conduct soil sampling and management of the OU4 remedial action.

- Remedial Design
 - The DePue Group continued to prepare the OU4 Remedial Design Report in accordance with the Remedial Design (RD) outline discussed with IEPA.

Summary of Work Planned for the Next Reporting Period:

- The DePue Group will follow up with IEPA regarding the supplementary comments.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- None

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

V. OPERABLE UNIT 5: DEPUÉ LAKE AND FLOODPLAIN

Summary of Work Performed during the Reporting Period:

- DePue Lake Risk Assessments
 - The DePue Group is preparing a response to IEPA's July 22, 2016 comments on the revised Supplemental Sediment Investigation Work Plan and Reference Area Selection Technical Memorandum.
 - The DePue Group completed the water quality equipment evaluation on Lake DePue in support of the implementation of supplemental investigations on October 6, 2016.

Summary of Work Planned for the Next Reporting Period:

- DePue Lake Risk Assessments
 - The DePue Group will submit a response to IEPA's comments on the Supplemental Sediment Investigation Work Plan and Reference Area Selection Technical Memorandum.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- Additional requirements necessary to address OU1 (South Ditch Sediments), if any, will be completed as part of the scope of work for OU5 (DePue Lake and Floodplain).
- The Supplemental Sediment Investigation has been postponed pending resolution to IEPA's comments on the work plan.

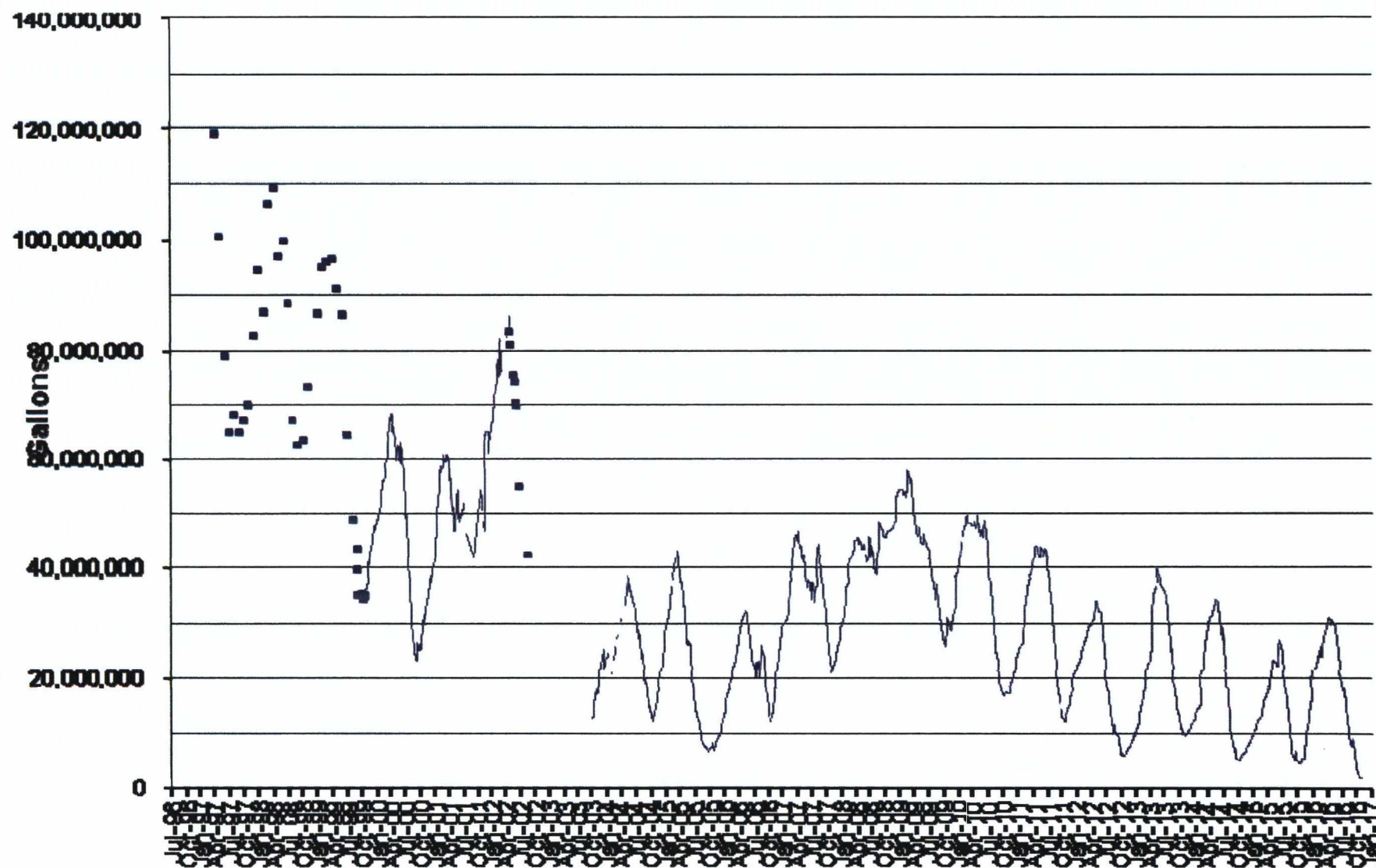
Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

ATTACHMENT 1

Gypstack

Surface-Water Volumes within the Phosphogypsum Stack System

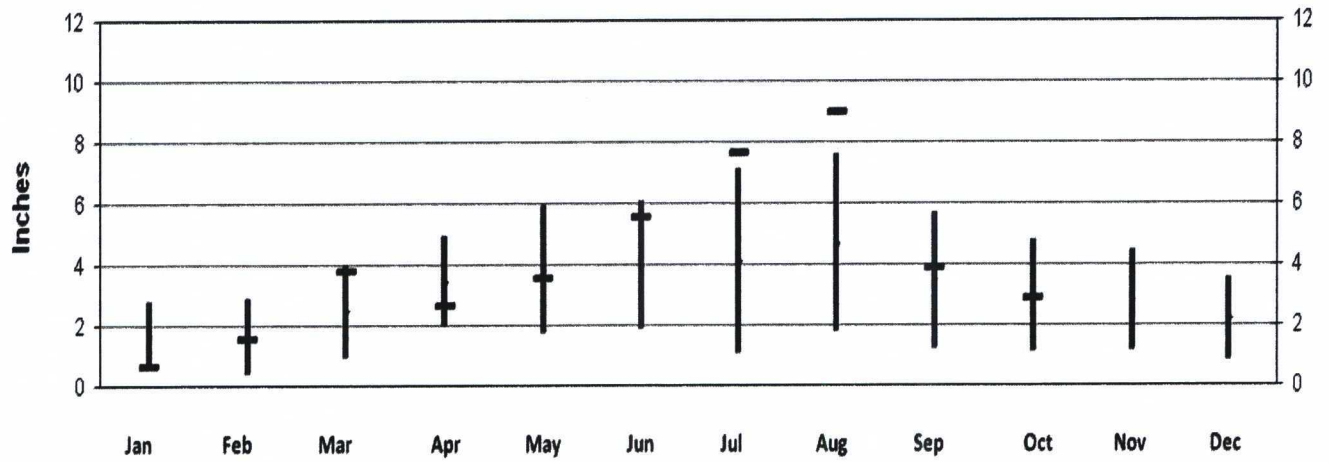


1978 Through 2016 DePue Site Precipitation

2016 Monthly Averages
(± 1 Standard Deviation)

Monthly Average (1978 - 2016)

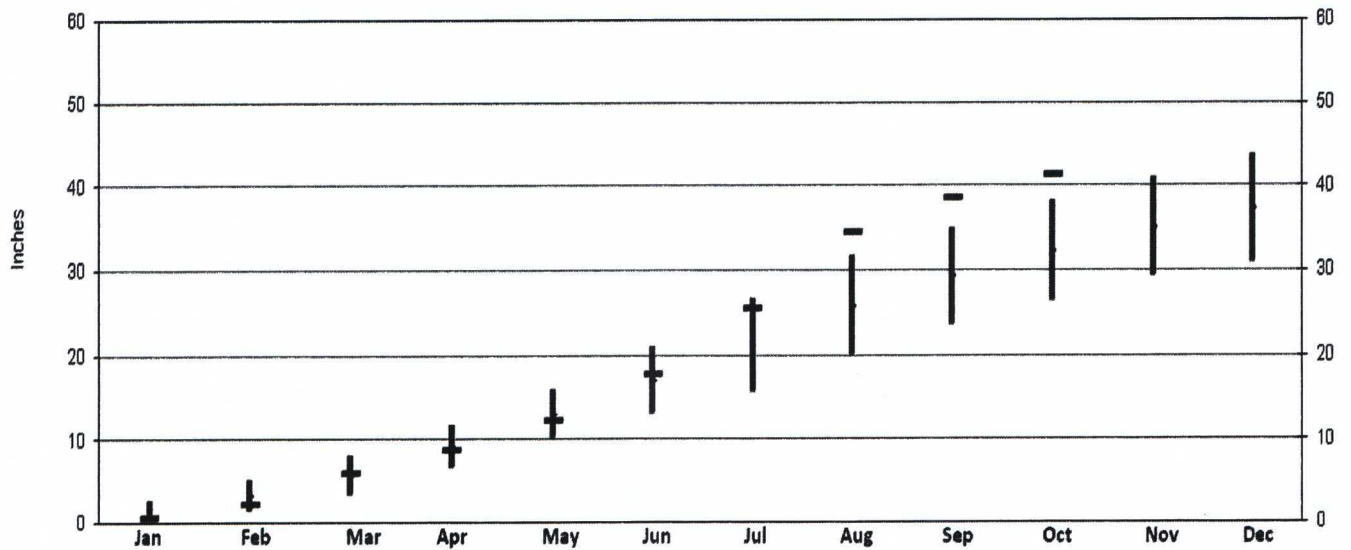
2016 Monthly total



2016 Average Monthly Cumulative Totals
(± 1 Standard Deviation)

Average Monthly Cumulative Total (1978-2016)

2016 Monthly Cumulative Total



Analytical Results for Samples Collected at the 002 Outfall (mg/L)

Sample Collection Date	pH (S.U.)	Total Dissolved Solids (mg/L)	Total Phosphorus (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	Ammonia-Nitrogen (mg/L)	Unionized Ammonia (mg/L)
1/06/16	7.89	491	0.396	0.512	90.8	0.111	<0.00100
2/03/16	7.63	312	0.911	0.368	73.9	0.190	<0.00100
2/17/16	7.11	498	0.362	0.536	96.7	0.438	<0.00100
3/01/16	7.20	537	0.605	0.786	137	0.178	<0.00100
3/17/16	7.60	477	0.365	0.502	115	<0.100	<0.00100
4/05/16	6.99	475	0.448	0.547	105	0.0643	<0.00100
4/20/16	7.43	473	0.516	0.590	117	0.735	0.00588
4/28/16	7.34	513	0.613	0.569	126	<0.100	<0.00100
5/05/16	7.80	480	0.477	0.537	106	0.178	0.00413
5/17/16	7.99	472	0.349	0.387	95.7	0.0626	0.00195
6/01/16	8.24	508	0.549	0.401	83.0	0.125	0.00818
6/14/16	8.29	509	1.29	0.931	198	0.430	0.0447
6/15/16	8.24	330	0.817	0.502	49.7	0.271	0.0263
6/23/16	8.25	328	0.518	0.352	45.7	0.133	0.0135
7/06/16	8.26	333	0.560	0.423	64.8	0.159	0.0162
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7/22/16	8.21	406	0.495	0.497	72.0	0.256	0.0248
8/04/16	8.09	480	0.693	0.893	87.4	<0.100	<0.00100
8/12/16	8.16	334	0.539	0.478	79.8	0.371	0.0321
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9/01/16	8.39	473	0.519	0.474	76.8	0.122	0.0141
9/08/16	8.25	358	0.608	0.516	59.2	<0.100	<0.00100
9/22/16	8.26	499	0.649	0.488	101	<0.100	<0.00100
10/05/16	8.14	534	0.749	0.762	101	0.102	0.0194
10/06/16	8.25	469	0.790	0.715	92.2	0.276	0.0194
Former Permit IL 0032182 Limits	6.5 – 9	1,000	Report	1.4	500	15	0.04

Note: The concentration of Unionized Ammonia detected was above the former permit limit (in bold type above from 6/14/16). The discharge flow rate when the sample was collected was 0.272 MGD. An additional sample was collected 6/15/16 and was analyzed by the laboratory resulting in 0.0263 (mg/L) for Unionized Ammonia.

ATTACHMENT 2

**Summary of Sampling Results
DePue Interim Water Treatment Plant**

Interim Consent Order Report
October, 2016
Summary Of Analytical Results
DePue Interim Water Treatment Plant

Influent Data (mg/L)

Date	TSS	Cadmium	Copper	Iron	Manganese	Nickel	Lead	Zinc	pH- std units	Lift Station Flow (gpm)
01/05/16	68	1 8	36	2 4	29	<1 0	<1 0	640	5 88	32
02/02/16	14	1 3	30	1 1	27	<1 0	<1 0	610	5 90	22
03/02/16	16	1 4	35	0 8	28	0 6	0 4	630	5 90	30
04/05/16	110	1 3	35	1 6	23	0 5	0 6	530	5 86	36
05/03/16	49	1 0	22	<1 0	19	<1 0	<1 0	420	5 88	18
06/07/16	18	1 3	34	0 8	27	0 5	0 5	600	5 80	12
07/05/16	400	1 3	55	3 1	31	1 8	<1 0	650	5 86	17
08/02/16	35	1 2	33	1 7	28	<1 0	<1 0	600	5 80	15
09/06/16	8	1 0	29	<1 0	26	<1 0	<1 0	520	6 00	14
10/11/16	12	1 2	32	<1 0	28	<1 0	<1 0	600	5 86	20
YTD Average	73	1 3	34	1 5	27	0 9	0 9	580	5 87	22

Notes

1 Values preceded by "<" were not detected greater than the laboratory method detection limit shown

Interim Consent Order Report
October, 2016
Summary Of Analytical Results
DePue Interim Water Treatment Plant

Effluent Data (mg/L)

Date	TSS	Cadmium	Copper	Iron	Manganese	Nickel	Lead	Zinc	pH - std units
01/05/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 00
01/12/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 12	7 02
01/19/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 00
01/26/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 24	7 10
02/02/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 12	7 00
02/09/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 46
02/16/16	6 4	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 13	7 00
02/23/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 00
03/02/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 31	7 66
03/09/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 00
03/15/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 11	7 12
03/22/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 13	7 06
03/29/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 00
04/05/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 14	7 06
04/12/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 13	7 00
04/19/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 22	7 02
04/26/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 12	7 00
05/03/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 00
05/10/16	16 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 44
05/17/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 00
05/24/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 13	7 02
05/31/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 14	7 22
06/07/16	<4 0	0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 14	7 44
06/14/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 00
06/21/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 16	7 00
06/28/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 12	7 00
07/05/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 19	7 44
07/12/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 00
07/19/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 35	7 08
07/26/16	4 8	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 25	7 00
08/02/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 42	7 22
08/09/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 45	7 00
08/16/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 17	7 00
08/23/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 16	7 00
08/30/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 02
09/06/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 19	7 66
09/13/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 22
09/20/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 17	7 00
09/27/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 21	7 00
10/04/16	<4 0	<0 02	<0 10	0 40	<0 10	<0 10	<0 10	0 21	7 08
10/11/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 16	7 00
10/18/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 44
10/25/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 65	7 06

YTD Avg	4 4	0 02	0 10	0 11	0 10	0 10	0 10	0 18	7 11
Oct Avg	4 0	0 02	0 1	0 2	0 1	0 1	0 1	0 29	7 15
Oct Max	4 0	0 02	0 1	0 4	0 1	0 1	0 1	0 65	7 44

DISCHARGE LIMITS (mg/l)

	TSS	Cadmium	Copper	Iron	Maganese	Nickel	Lead	Zinc	pH-std units
Daily Max	30	0 3	1	4	2	2	0 4	2	6-9
Monthly Avg	15	0 15	0 5	2	1	1	0 2	1	6-9

Notes

1 Values preceded by "<" were not detected greater than the laboratory method detection limit shown

Via Electronic Mail

Ms. Charlene Falco
Illinois Environmental Protection Agency
Bureau of Land, #24
Federal Site Remediation Section, Federal Facilities Unit
1021 North Grand Avenue East
Springfield, IL 62702

**Re: Monthly Progress Report – December 2016
Interim Consent Order Activities
DePue Site, DePue, Illinois

People of the State of Illinois vs Horsehead Ind., et al.
Case Number 95 CH 18
Site ID 0110300003 – Bureau**

Dear Ms. Falco:

January 17, 2017

This progress report is being submitted by Ramboll Environ US Corporation (Ramboll Environ), on behalf of the DePue Group. The attached progress report addresses the Interim Consent Order (ICO) activities conducted from December 1 to December 31, 2016 at the DePue Site. The report also indicates planned activities for the next reporting period.

Ramboll Environ
333 West Wacker Drive
Suite 2700
Chicago, IL 60606
USA

This report complies with the requirements of the ICO, Section XVI, paragraph C, and Attachment 1, paragraph 12.

T +1 312 288 3800
F +1 312 288 3801
www.ramboll-environ.com

If you have any questions, please call.

Sincerely,

Ramboll Environ US Corporation


Scott Hayter
Principal

Attachment

**MONTHLY PROGRESS REPORT
FOR
DECEMBER 2016**

**INTERIM CONSENT ORDER ACTIVITIES
DEPUE SITE
DEPUE, ILLINOIS**

Prepared For:

Illinois Environmental Protection Agency
1021 North Grand Avenue, East
Post Office Box 19276
Springfield, Illinois 62794-9276

DISTRIBUTION:

- 2 copies – Charlene Falco, Illinois Environmental Protection Agency
- 1 copy – Mark Gurnick, Illinois Environmental Protection Agency
- 1 copy – Kevin Philips, Ecology and Environment
- 1 copy – Jennifer Elkins, United States Environmental Protection Agency
- 1 copy – Beth Wallace, Assistant Attorney General
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- 1 copy – David Rigg, ARCADIS (electronic copy only)
- 1 copy – Mark Travers, Ramboll Environ US Corporation (electronic copy only)
- 1 copy – Eric Bryant, Village of DePue (electronic copy only)
- 1 copy – Tony Wlodarski, AMEC (electronic copy only)

I OPERABLE UNIT 1: SOUTH DITCH SEDIMENT

- Completed

II. OPERABLE UNIT 2: PHOSPHOGYPSUM STACK

Summary of Work Performed during the Reporting Period:

- Routine maintenance and monitoring activities continued at the phosphogypsum stack. These activities included pumping, observing and recording flow and water levels, maintaining storm water diversion systems (catch basins, dams, and discharge piping), measuring flow and collecting samples at the 002 Outfall when applicable, inspecting, monitoring and maintaining ground-water collection and pumping systems, inspecting and maintaining cover integrity and supporting and maintaining the Health and Safety program.
- The center pivot irrigation system was shut down for the season on November 18, 2016.
- As of January 3, 2017, 171.4 million gallons of water had been discharged through the treatment wetland. Flow rates and discharge are logged daily, Monday through Friday and reported monthly to the IEPA.
- The wetland sprinkler system was shut down for the season on November 4, 2016.
- Two samples were collected from Outfall 002 during December 2016.
- Evaluated an additional borrow soil site to be used for the Closure of the Phosphogypsum Stack System. Submitted the revised Final Design Report for implementation of the Closure of the Phosphogypsum Stack System on December 12, 2016.
- Continued preparation of a report for the results from the 2016 Annual Ground Water, Surface Water and Seep Sampling Event as provided in the Final Closure Plan

Summary of Work Planned for the Next Reporting Period:

- Continue routine maintenance and monitoring activities within the phosphogypsum stack system.
- Submit a report for the results from the 2016 Annual Ground Water, Surface Water and Seep Sampling Event as provided in the Final Closure Plan.
- Continue to identify and evaluate additional borrow soil sites to be used for the Closure of the Phosphogypsum Stack System.
- Continue the re-evaluation of specifications and bid documents for implementation of the Closure of the Phosphogypsum Stack System based upon the revised Final Design Report.
- Await confirmation from IEPA on the Final Closure Plan and submit final.
- Await confirmation from IEPA on a sampling work plan for two additional borrow soil sites.
- Await review from IEPA of the revised Final Design Report for implementation of the Closure of the Phosphogypsum Stack System.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- None

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

III. OPERABLE UNIT 3: PLANT SITE

Summary of Work Performed during the Reporting Period:

- Risk Assessment
 - The DePue Group submitted a Toxicity Reference Values (TRV) Technical memorandum on December 14, 2016.
 - The DePue Group awaits IEPA's response to the Ecological Risk Assessment/Baseline Ecological Risk Assessment (SLERA/BERA) Work Plan revisions submitted on September 30, 2016.
 - The DePue Group continued to prepare the OU3 groundwater model.
- Interim Water Treatment Plant (IWTP) Operations
 - The IWTP treated 714,240 gallons of water during December 2016. The influent and effluent data are included in Attachment 2:
 - Approximately 2,600 pounds of zinc were removed.
 - Approximately 140 pounds of manganese were removed.
 - Approximately 200 pounds of copper were removed.
 - The following activities were completed at the IWTP:
 - Routine operation and maintenance.
 - The DePue Group sent out a Request for Proposal for contracting services for operation, maintenance and management of the IWTP on December 6, 2016.
- Site Operations
 - The most recent OU3 site fence inspections were completed on December 28, 2016. There were no issues noted; all fencing was found secure and "No Trespassing" signs were intact. No repairs were necessary.

Summary of Work Planned for the Next Reporting Period:

- The DePue Group will continue routine operation and maintenance at the IWTP.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- None

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

IV. OPERABLE UNIT 4: OFF-SITE SOIL

Summary of Work Performed during the Reporting Period:

- Proposed Plan of Remedial Action
 - The DePue Group continued the process of selecting a consultant to conduct soil sampling and management of the OU4 remedial action.

- Remedial Design
 - The DePue Group continued to prepare the OU4 Remedial Design Report in accordance with the Remedial Design (RD) outline discussed with IEPA.

Summary of Work Planned for the Next Reporting Period:

- The DePue Group will continue to coordinate with IEPA regarding the technical aspects of the Record of Decision and the Remedial Design.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

- None

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

V. OPERABLE UNIT 5: DEPUE LAKE AND FLOODPLAIN

Summary of Work Performed during the Reporting Period:

- DePue Lake Risk Assessments
 - The DePue Group awaits a response on the revised Supplemental Sediment Investigation Work Plan and Reference Area Selection Technical Memorandum submitted on November 10, 2016.

Summary of Work Planned for the Next Reporting Period:

- DePue Lake Risk Assessments
 - Awaiting comments on the Supplemental Sediment Investigation Work Plan.

Problems Encountered/Resolved:

- None

Revisions to Scopes of Work and Schedules:

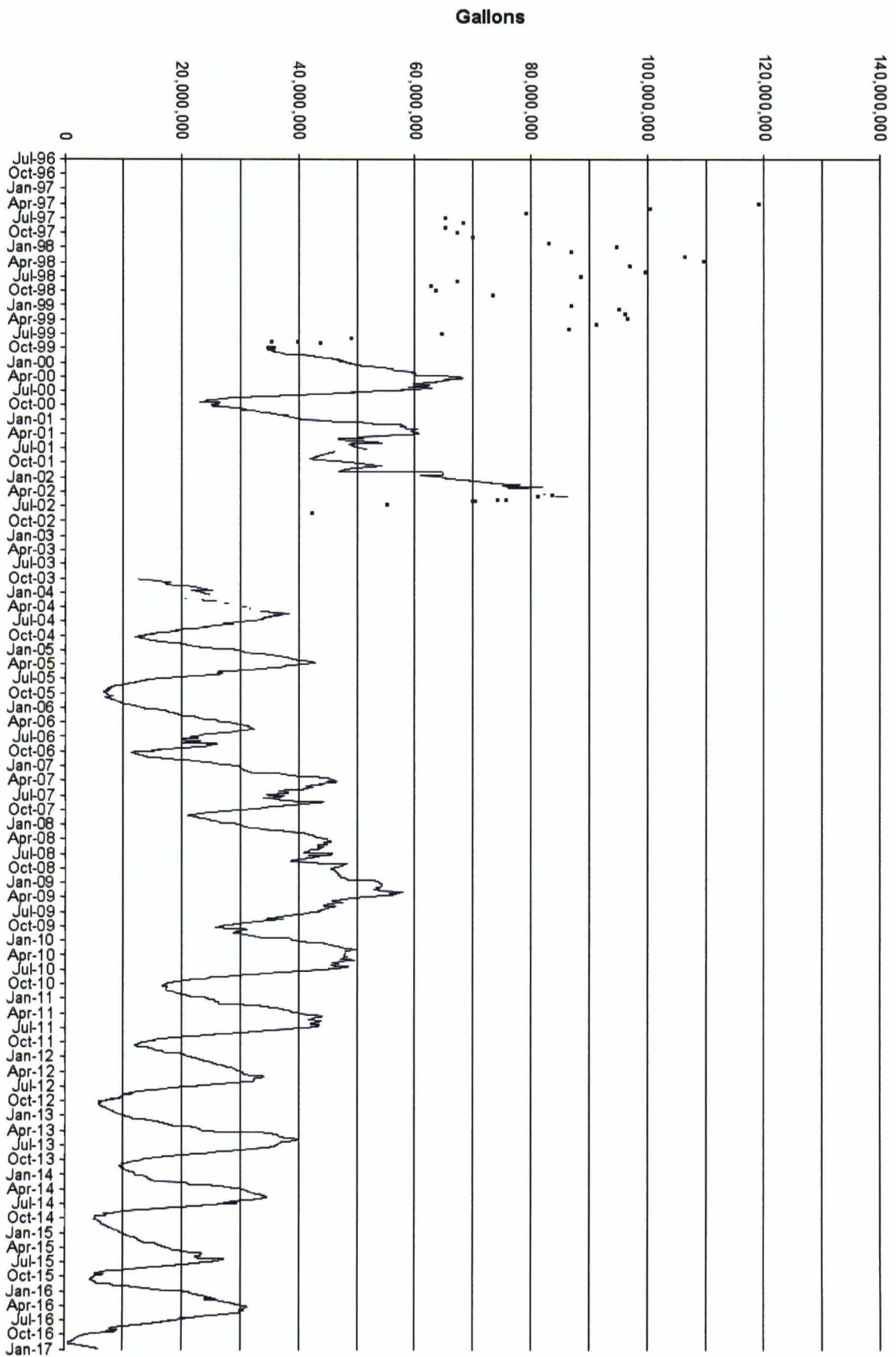
- Additional requirements necessary to address OU1 (South Ditch Sediments), if any, will be completed as part of the scope of work for OU5 (DePue Lake and Floodplain).
- The Supplemental Sediment Investigation has been postponed pending resolution to IEPA's comments on the work plan.

Changes to Key Personnel, Consultants, Contractors, or Subcontractors:

- None

ATTACHMENT 1
Gypstack

Surface-Water Volumes within the Phosphogypsum Stack System

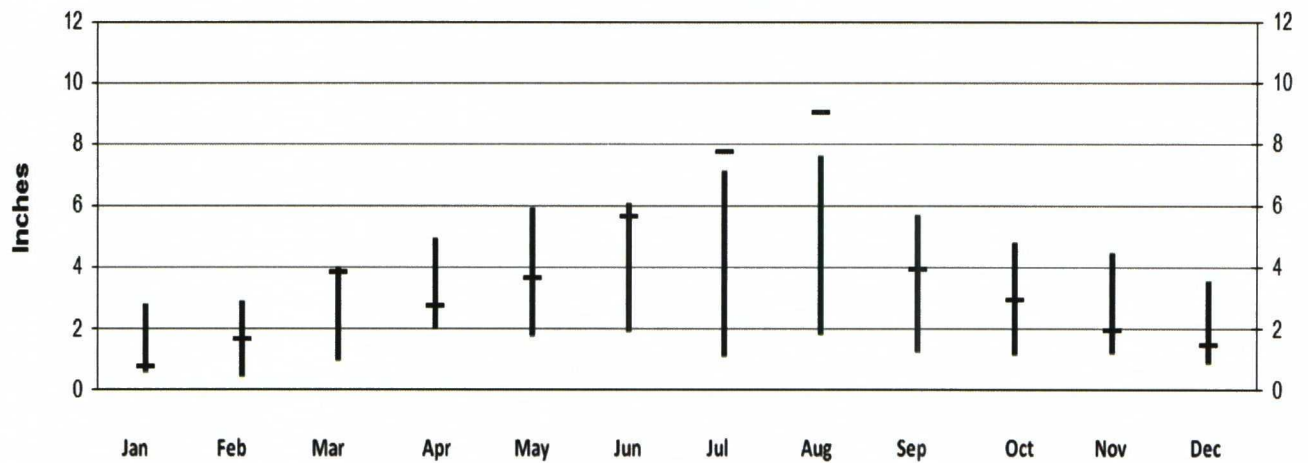


1978 Through 2016 DePue Site Precipitation

2016 Monthly Averages
(± 1 Standard Deviation)

Monthly Average (1978 - 2016)

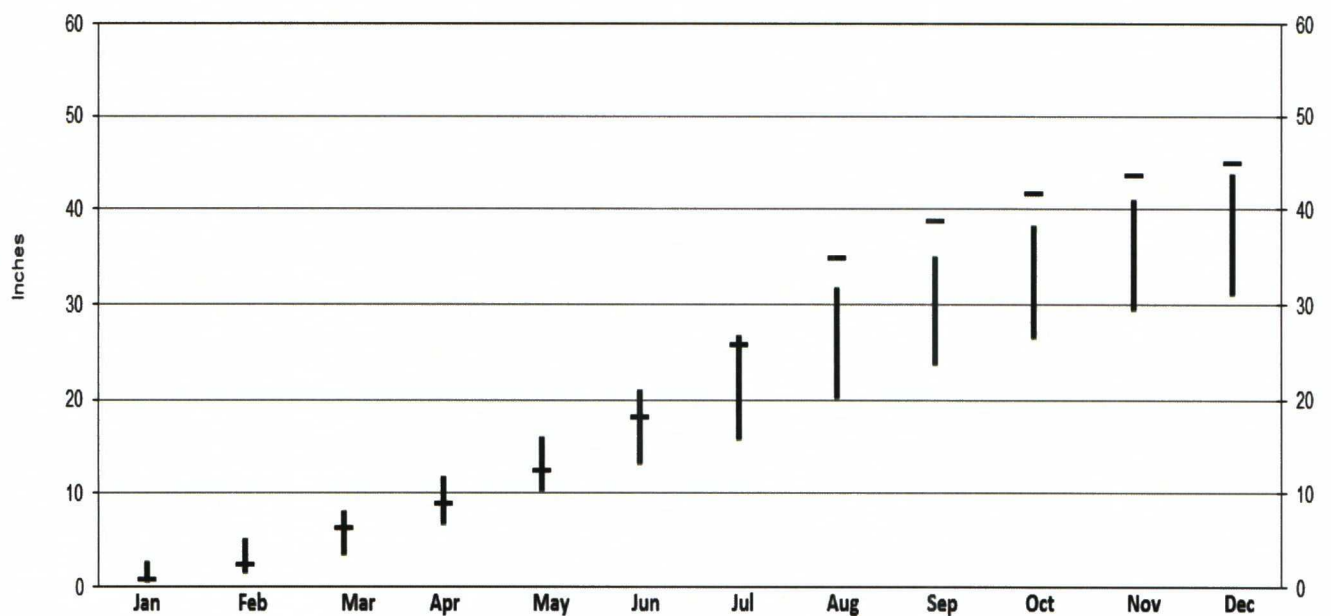
2016 Monthly total



2016 Average Monthly Cumulative Totals
(± 1 Standard Deviation)

Average Monthly Cumulative Total (1978-2016)

2016 Monthly Cumulative Total



Analytical Results for Samples Collected at the 002 Outfall (mg/L)

Sample Collection Date	pH (S.U.)	Total Dissolved Solids (mg/L)	Total Phosphorus (mg/L)	Fluoride (mg/L)	Sulfate (mg/L)	Ammonia-Nitrogen (mg/L)	Unionized Ammonia (mg/L)
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8/19/16	8.33	551	0.659	0.863	149	0.125	0.0168
8/30/16	8.30	336	1.07	0.556	53.7	0.150	0.0138
9/01/16	8.39	473	0.519	0.474	76.8	0.122	0.0141
9/08/16	8.25	358	0.608	0.516	59.2	<0.100	<0.00100
9/22/16	8.26	499	0.649	0.488	101	<0.100	<0.00100
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10/06/16	8.25	469	0.790	0.715	92.2	0.276	0.0194
11/01/16	8.32	548	0.530	0.526	129	0.220	0.0151
11/15/16	8.34	567	0.248	0.611	111	0.115	0.00484
12/08/16	6.93	637	0.510	0.454	149	0.270	<0.00100
12/22/16	7.14	629	0.557	0.490	132	0.104	<0.00100
Former Permit IL 0032182 Limits	6.5 – 9	1,000	Report	1.4	500	15	0.04

Note: The concentration of Unionized Ammonia detected was above the former permit limit (in bold type above from 6/14/16). The discharge flow rate when the sample was collected was 0.272 MGD. An additional sample was collected 6/15/16 and was analyzed by the laboratory resulting in 0.0263 (mg/L) for Unionized Ammonia.

ATTACHMENT 2

Summary of Sampling Results

DePue Interim Water Treatment Plant

Interim Consent Order Report
December, 2016
Summary Of Analytical Results
DePue Interim Water Treatment Plant

Influent Data (mg/L)

Date	TSS	Cadmium	Copper	Iron	Manganese	Nickel	Lead	Zinc	pH- std units	Lift Station Flow (gpm)
01/05/16	68	1 8	36	2 4	29	<1 0	<1 0	640	5 88	32
02/02/16	14	1 3	30	1 1	27	<1 0	<1 0	610	5 90	22
03/02/16	16	1 4	35	0 8	28	0 6	0 4	630	5 90	30
04/05/16	110	1 3	35	1 6	23	0 5	0 6	530	5 86	36
05/03/16	49	1 0	22	<1 0	19	<1 0	<1 0	420	5 88	18
06/07/16	18	1 3	34	0 8	27	0 5	0 5	600	5 80	12
07/05/16	400	1 3	55	3 1	31	1 8	<1 0	650	5 86	17
08/02/16	35	1 2	33	1 7	28	<1 0	<1 0	600	5 80	15
09/06/16	8	1 0	29	<1 0	26	<1 0	<1 0	520	6 00	14
10/11/16	12	1 2	32	<1 0	28	<1 0	<1 0	600	5 86	20
11/01/16	54	1 1	28	0 8	25	0 5	0 4	470	6 04	20
12/06/16	45	1 1	34	1 1	24	0 5	0 5	450	5 96	15
YTD Average	69	1 3	34	1 4	26	0 9	0 8	560	5 90	21

Notes

1 Values preceded by "<" were not detected greater than the laboratory method detection limit shown

**Interim Consent Order Report
December, 2016
Summary Of Analytical Results
DePue Interim Water Treatment Plant**

Effluent Data (mg/L)

Date	TSS	Cadmium	Copper	Iron	Manganese	Nickel	Lead	Zinc	pH - std units
01/05/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 00
01/12/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 12	7 02
01/19/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 00
01/26/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 24	7 10
02/02/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 12	7 00
02/09/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 46
02/16/16	6 4	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 13	7 00
02/23/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 00
03/02/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 31	7 66
03/09/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 00
03/15/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 11	7 12
03/22/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 13	7 06
03/29/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 00
04/05/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 14	7 06
04/12/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 13	7 00
04/19/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 22	7 02
04/26/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 12	7 00
05/03/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 00
05/10/16	16 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 44
05/17/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 00
05/24/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 13	7 02
05/31/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 14	7 22
06/07/16	<4 0	0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 14	7 44
06/14/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 00
06/21/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 16	7 00
06/28/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 12	7 00
07/05/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 19	7 44
07/12/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 00
07/19/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 35	7 08
07/26/16	4 8	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 25	7 00
08/02/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 42	7 22
08/09/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 45	7 00
08/16/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 17	7 00
08/23/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 16	7 00
08/30/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 02
09/06/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 19	7 66
09/13/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 22
09/20/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 17	7 00
09/27/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 21	7 00
10/04/16	<4 0	<0 02	<0 10	0 40	<0 10	<0 10	<0 10	0 21	7 08
10/11/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 16	7 00
10/18/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 44
10/25/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 65	7 06
11/01/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 18	7 01
11/08/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 15	7 00
11/15/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 22
11/22/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 14	7 42
11/29/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 11	7 00

Interim Consent Order Report
December, 2016
Summary Of Analytical Results
DePue Interim Water Treatment Plant

Effluent Data (mg/L)

Date	TSS	Cadmium	Copper	Iron	Manganese	Nickel	Lead	Zinc	pH - std units
12/06/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 16	7 62
12/13/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 12	7 10
12/20/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 13	7 00
12/27/16	<4 0	<0 02	<0 10	<0 10	<0 10	<0 10	<0 10	0 10	7 00

YTD Avg	4 3	0 02	0 10	0 11	0 10	0 10	0 10	0 17	7 12
Dec Avg	4 0	0 02	0 1	0 1	0 1	0 1	0 1	0 13	7 18
Dec Max	4 0	0 02	0 1	0 1	0 1	0 1	0 1	0 16	7 62

DISCHARGE LIMITS (mg/l)

	TSS	Cadmium	Copper	Iron	Maganese	Nickel	Lead	Zinc	pH-std units
Daily Max	30	0 3	1	4	2	2	0 4	2	6-9
Monthly Avg	15	0 15	0 5	2	1	1	0 2	1	6-9

Notes

1 Values preceded by "<" were not detected greater than the laboratory method detection limit shown